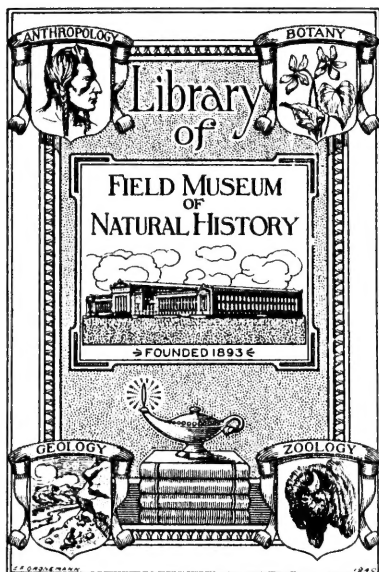


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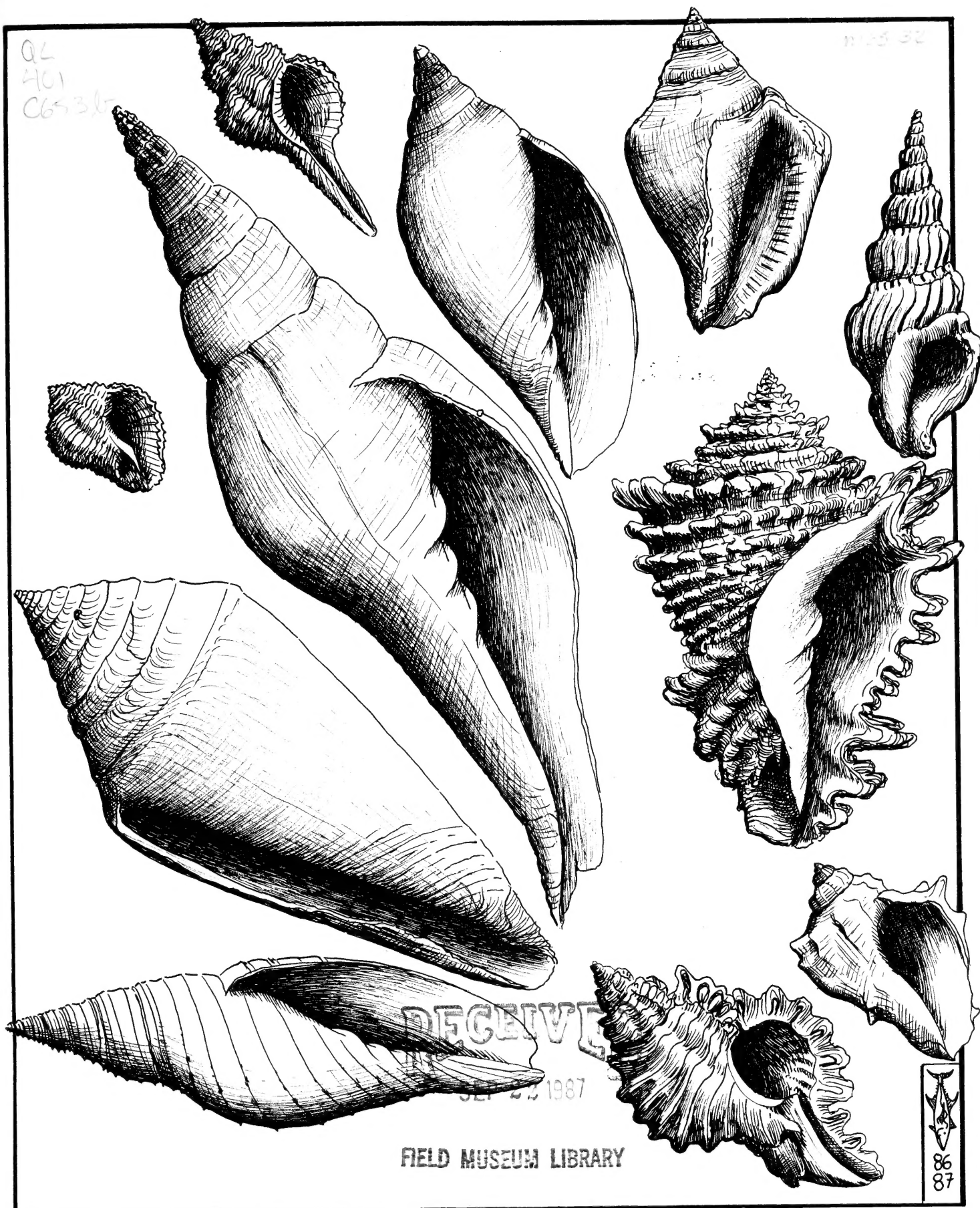












# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 15, NO. 2

JUNE 1987



# CONCHOLOGISTS OF AMERICA, INC.

**A Collective Devotion To  
Advancing-  
Conchology.**

In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and world. An annual convention is held each year in a different part of the country.

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## MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January.

INDIVIDUAL (per year) \$10.00; FAMILY & CLUB (receiving one Bulletin) \$12.50; OVERSEAS (Air Mail Postage) \$20.00. New members send check or money order to the MEMBERSHIP CHAIRPERSON Phyllis & Bernard Pipher, 1116 N Street, Tekamah, NE 68061. Renewals are sent to the TREASURER. Back issues are available from the Piphers @ \$2.50 each.

**Cover:** A collage of Pliocene fossils by John Timmerman, Belle Mead, New Jersey. Clockwise from lower left: *Mitra heilprini*, *Conus adversarius*, *Solenosteira menceana*, *Turbinella regina*, *Fusinus caloosensis florida*, *Scaphella floridana*, *Strombus pugilus alatus*, *Cymatosyrinx acinica*, *Vasum horridum*, *Melongenella subcoronata* and *Murex flurifer*.

## PRESIDENT'S MESSAGE

We are American Conchologists. What better way to celebrate the Conchologists of America's 15th Anniversary than to recognize this fact and update the name of the COA Bulletin with this issue to "AMERICAN CONCHOLOGIST." The name reflects the origin and interest of the organization. As this publication continues to gain prestige in the conchological and malacological world, with a growing membership both here in the United States and overseas, the content and focus of the AMERICAN CONCHOLOGIST will keep pace with this expansion. AMERICAN CONCHOLOGIST is your publication, so as you have heard so many times in the past, please support it with articles and pictures of interest.

By the time this message is published I will have passed the gavel over to the new administration. It has been a productive and rewarding year for COA. The computerization of the membership and editorial aspects of this publication are well underway. It involved resourcing the expertise of various individuals, most notably David Scheu, our editor's son. This young man single-handedly took all of the information needed to run the various

membership tasks and programmed a sophisticated database that will most certainly make the organization more efficient in its operation. I would like to personally thank David for spending his free time on this project. Efficiency was the key word in administrative changes this past year. Many organizational aspects of COA go unseen by most of the membership; they often can be quite burdensome for Executive Board members. I hope future Executive Boards will continue these policies and find additional ways to streamline the behind-the-scenes operations of COA. After all, we are an organization created to promote the study of and interest in conchology, and should spend our time working towards these goals.

COA has grown by leaps and bounds since its first convention of 20 conchologists in Middletown, Rhode Island in 1972. Now on the heels of a fabulous convention in St. Louis, we can look forward to the next COA convention in Fort Myers, Florida, tentatively scheduled for July 11-15, 1988. Speaking of conventions, those clubs curious about what is involved in hosting a COA convention can request a sixteen minute slide/tape presentation created this year outlining all aspects needed to host a successful convention. Write the president for more details.

Finally thanks are due every one of my fellow Executive Board members and Committee Chairmen for all of their help during the past year. As in any successful organization, it must be a joint effort. I would, though, like to acknowledge two individuals whose positions with COA keep them busy day-in and day-out, and who were always there to lend a helping hand without being asked — both Walter Sage, our treasurer, and Lynn Scheu, our publications editor, have gone far beyond the call of duty to help effect COA's smooth running. They both will be an important asset to future administrations.

Happy shelling, and until next time . . .

**RICHIE**

## EDITORIAL

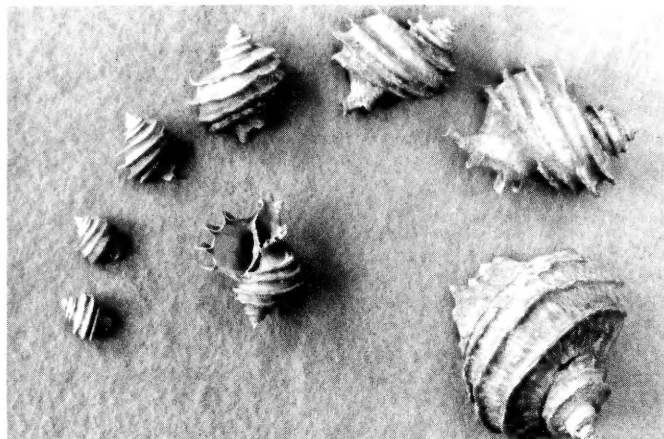
It was "The Year of the Fossil" at the Florida Shell Shows this spring. Four Shell of the Show awards and a COA Grand Trophy went to fossils. These wins reflected a national trend, focussed on Florida and its famous fossil pits, but spreading outward rapidly. More and more people are sweating it out in the fossil pits, dragging home big, gray, odd-looking conchs and vase shells that resemble Indo-Pacific ones, picking through heaps of ancient sand searching for miniatures, poring over their Olsson and Harbison, and learning to pronounce strange names like *Fusinus caloosensis* and *Pterorytis fluviana*. They're seeking out new fossilizing sites and learning lots about geology and paleontology. Newly initiated fossil buffs go home from their Florida vacations to discover that fossils abound back home in Alabama or Ohio, and that they can field-collect along this rich new shelling avenue year round.

Lest some of you wonder as you read through this issue, "What happened to shells — glossy, clean new shells with color and opercula?" we wish to reassure you. No, we're not turning the Bulletin into an amateur fossil magazine; in fact, we've never even been in a fossil pit. But we do believe that the past has a great deal to teach us about the present, that the study of fossils helps clarify relationships among molluscan families and gives us insight into "how shells got that way." So, in recognition of the current paleontological trend in conchology, this issue spotlights fossils.

## Miocene Fossils, anyone?

Wallace L. Ashby, of Calvert County, Maryland, wrote a booklet on the Miocene fossils of the Chesapeake region, "Fossils of Calvert Cliffs." First published in 1979, it is replaced by the updated and greatly expanded second edition. It is available for \$5.25 from The Calvert Marine Museum, P.O. Box 97, Solomons, Maryland 20688.

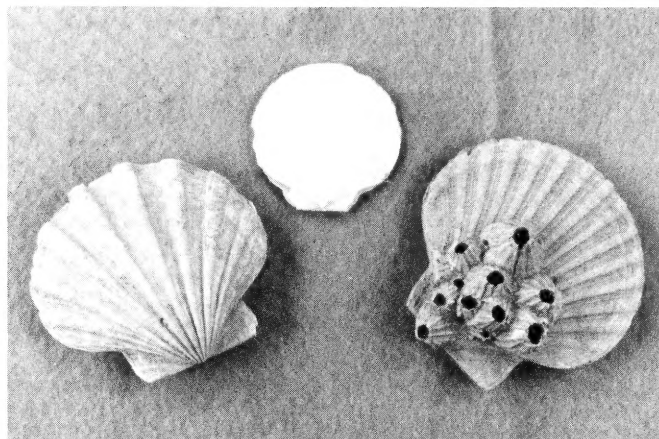




All photos by Richard Kirk

All fossils from the collection of Richard Kirk

**Ecphora. Growth series, *Ecphora quadricostata* Say.**



**Pectinidae. Left to right: *Chesapecten jeffersonia* Say, *Amusium mortoni* Ravenel (Carolinas and South), *Chesapecten madisonia*.**

## THE LOST COLONY

### The Story of the Shells of the Chesapeake

by Richard Kirk

With appreciation to Gary Rosenberg and Earl Spamer for their invaluable assistance.

Thanks largely to the generosity of the managers and owners of several landfill operations, notably the owners of the Newburn Pit in Sarasota, access to the incredible richness of the Florida Pliocene fossil formations has been open to amateur and scientific collectors for some years now. Fossils, once the province of dusty museum drawers and out-of-print books, have become a major focal point in serious shell collecting. As a result, a number of private collections of Florida fossils rival and even surpass museum holdings in depth and scope. Those lucky enough to pursue regular collecting trips to Sarasota alone over the years have amassed collections which astonish the first-time viewer, no matter what he knows about either shells or fossils. So legendary has Florida become for the beauty and variety of its shells and fossils that many East Coast collectors have concentrated solely on the fossils of this area.

However Florida, rich though it is, is not the last word in fossils, nor is the Pliocene Epoch. Much of the eastern United States, from Texas to Delaware, is incredibly rich in Eocene and Miocene molluscan fossils, remains of a fauna vastly different from today's mollusks. It is the purpose of this article to look at the northern part of that region, the Chesapeake: roughly the area from Maryland to North Carolina.

This segment of the Atlantic coast is a popular resort area. In winter though, the resort towns often resemble ghost towns, inhabited only by a handful of natives and those intrepid incorrigibles, the birdwatchers. For shell collectors, summer or winter, the area holds little interest. Perhaps one of the poorest areas in the U.S. for collecting mollusks, it hosts only a handful of endemic species, none of them collectors' items. All other species can be collected further north or south, where in either case more interesting collecting can be done.

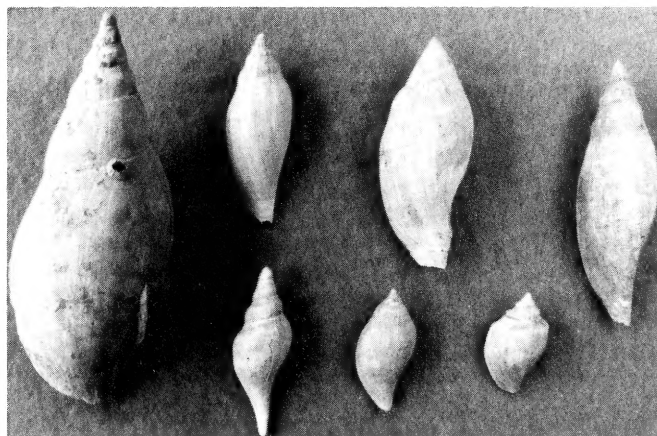
When you think about it, the paucity of the Chesapeake molluscan fauna is surprising. It is situated at the same latitude as the Mediterranean, central California, central Japan — all areas where mollusks proliferate. But the obvious scarcity of shells in the Middle Atlantic States is surely due to the unusually severe vacillations in water temperatures from summer to winter. In summer, the warm seventies is the rule, generating near tropical conditions too warm for the survival of truly boreal species (although boreal species do live in the constantly cold deep waters

here). Winter water conditions are just the opposite: the extremely cold water rules out survival of tropical species.

As a result of this unusual seasonal temperature variation, only very hardy species can survive in the Chesapeake year-round — *Lunatia heros* (Say, 1822), the Northern Moon; *Polinices duplicatus* (Say, 1822), the Shark Eye; *Crepidula fornicata* (Linne', 1758), the Slipper Shell; *Busycon carica* (Gmelin, 1791), the Knobby Whelk; *Busycon canaliculatum* (Linne', 1758), the Channeled Whelk; *Argopecten irradians* (Lamarck, 1819), the Bay Scallop; *Crassostrea virginica* (Gmelin, 1791), the Chesapeake Bay Oyster; and *Mercenaria mercenaria* (Linne', 1758), the Quahog Clam — and all these species are found north and/or south of the Chesapeake as well.

The distribution patterns of these species are very irregular by today's norms. *Scaphella junonia* (Lamarck, 1804) and *Fasciolaria lilium* G. Fischer, 1807 are found from Cape Hatteras, North Carolina south to Mexico, while the *Epitonium greenlandicum* (Perry, 1811) and *Neptunea lyrata* (Gmelin, 1791) occur from Cape Hatteras north into polar seas. The ranges of the Junonia and the Banded Tulip are characteristic of hundreds of species of the Carolinian marine faunal province, while the Greenland Wentletrap and the New England Neptune typify species from the Boreal Province.

The shell fauna of the Middle Atlantic States, then, is an anomaly, at best, an exception to the rules of distributional range.



**The Chesapeake Volutes. Lower row, left to right: *Scaphella* species (Md. — largest *Scaphella*); *Scaphella typus* Conrad (Md.); *Scaphella solitaria* Conrad (Va.). Upper row: *Scaphella* species, (Va.); *Scaphella mutabilis* Conrad (Va.); *Scaphella obtusa* Emmons (Va); *Scaphella dubia* Broderip (Va.).**

R. Tucker Abbott notes this anomaly in his classic *Golden Guide, Sea Shells of North America*, which marks out the Virginian Subprovince to allow for these unusual but consistent distributional patterns. For many years, I puzzled over this irregularity. The cause lay just below the surface, but it took me years to stumble upon it. (Of course the answer had been worked out by scholars a century and more ago, but because their work was not readily available, I had the distinct pleasure of making the rediscovery myself.) Fossils gave me the answer.

I had been a sheller for some thirty years when I first saw the famous Florida shell fossils. I was absolutely dumfounded to see, alongside the familiar-looking ancestors of *Strombus alatus* (Gmelin, 1791); *Fasciolaria lilium*; *Conus spurius* Gmelin, 1791; *Phyllonotus pomum* (Gmelin, 1791) and *Pleuroploca gigantea* (Kiener, 1840), such completely exotic and fantastic fossils as *Vasum horridum* Heilprin, 1887; *Xancus regina* (Heilprin, 1887); *Mitra heilprini* Cossman, 1899; *Murex textilis* Gabb, 1873; *Conus adversarius* Dall, 1890; *Cypraea problematica* (Heilprin, 1887) and their like. It was truly a mind-widening experience.



**Virginia Gastropods.** Lower row, left to right: *Pterorytis umbrifer* Conrad; *Busycon concinnum* Conrad; *Marginella (Bullata) oviformis* Conrad; *Ptychosalpinx fossilata* Conrad. Middle row: *Calliostoma philanthropus* Conrad; *Calliostoma mitchelli* Conrad; *Ptychosalpinx laqueata* Conrad; *Oliva canaliculata* Lea; *Turritella alticostata* Conrad; *Turritella* species. Upper row: *Calliostoma harrissii* Dall; *Sinum fragilis* Conrad; *Olivella* species; *Calliostoma basicum* Dall; *Ptychosalpinx altius* Conrad.

I thence made my way immediately to a Florida fossil pit, much in the same way a man makes his way to a steak dinner after weeks of fasting! And I don't have to tell you, I won't ever forget my first day in a fossil pit. It was about 95 degrees and raining, and the mosquitoes were biting relentlessly, but I barely noticed. I thought I had died and gone to heaven. I collected over a hundred species that day, and still they had to drag me out of that pit after dark, kicking and screaming! Thenceforth, every opportunity found this misplaced Philadelphian in the Florida fossil pits. My interest never waned — each new experience was always a greater thrill than the last. I could never wait to get back.

But then I met the indomitable Wylda Stephens of Norfolk, Virginia, lifelong friend of Bill Old, and fossil collector extraordinaire, who recognized my ravenous enthusiasm and invited me to go fossiling in Tidewater Virginia. I agreed to go, yet in the back of my mind I envisioned fossilized oyster and clam shells, at best a whelk or two, badly eroded and falling apart in my hands.

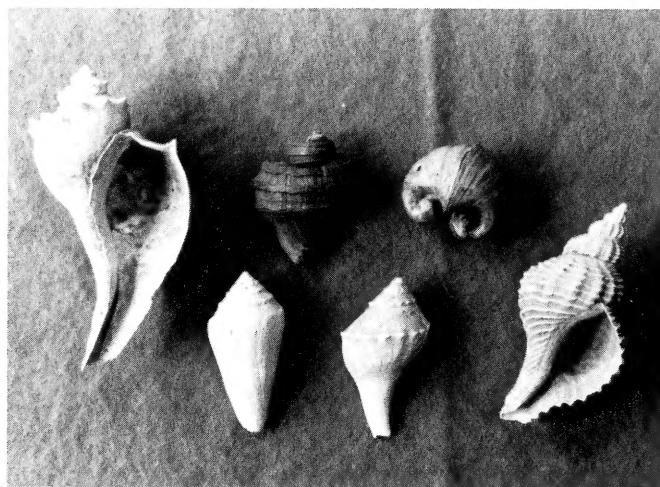
Once in Tidewater, however, my visions of boredom soon vanished as the fossil pit worked its magic. The first things that caught my eye in the landfill piles were GIGANTIC scallop shells. I started salivating! Within five minutes I saw a huge piece of tan snail with blade-like brick red ridges protruding from the body whorl. This, Wylda told me, was an *Ecphora*. I then found a smallish (one and a half inches) buccinid-like snail shell with

beautiful undulations and ridges. Wylda immediately identified a *Ptychosalpinx*. The generic name was familiar, I had in my collection a *Ptychosalpinx globulus* (Dall, 1889), the only living species in the genus, and it did indeed resemble that species. Then I found a cone. A cone, in Virginia! Then a perfect juvenile volute, a *Scaphella*, I was told — *Scaphella obtusa* (Emmons, 1858). *OBTUSA*?! And on and on it went. By the end of the day I had found a perfect small *Ecphora*, bright brick red, with its protoconch intact. And a whole bucket full of three species of *Chesapecten* scallops. Do I have to tell you I was hooked again? Now every opportunity finds this not-too-displaced Philadelphian fossiling along the shores of Chesapeake Bay.

I have found that fossiling in the Chesapeake is in many ways more difficult than fossiling in Sarasota. There, in a day's fossiling you can easily come home with 200 acceptable specimens of some 75 species, always with something new or special. In Virginia, the same eight hours' labor will net, say, 50 specimens of 35 species. The fossil material is not as durable, and the gastropods are fewer and farther between. But it is true that the best loved prizes are hardest won. And, in a sense, the real fascination with fossiling in the Chesapeake is the sense of wonder at what one finds.

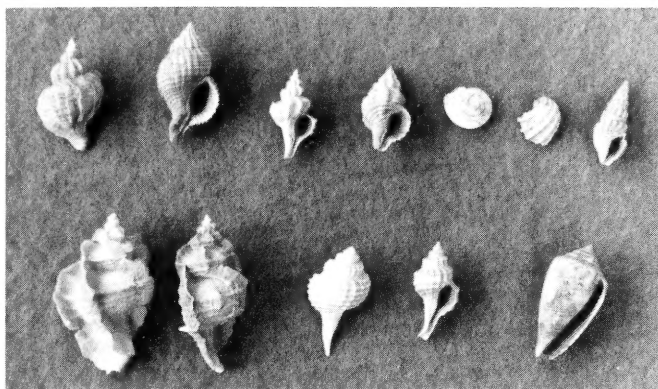
The Florida Pliocene material is truly fantastic, much of it relating directly to fauna living just offshore today. Indeed, one of the great joys of that fossil material is that it is so instructive about the present. By collecting and studying this material, we can learn volumes about geological history without opening a book. But be warned! If hooked, open the books you WILL! It is an incredible thrill to place modern day specimens next to their ancestral counterparts, reducing millions of years to a matter of inches. And such an event as the "discovery" of a *Mitra helenae* Radwin & Bibbey, 1972 becomes a *deja vu*, a rediscovery, right before your eyes, because you've known the fossil *Mitra heilprini* all along. You wonder why certain species survived and flourished, while others didn't.

But, as I said before, the material of the Chesapeake provides the real sense of wonder. In my ignorance, I went there expecting to find a few rather uninspiring specimens. But I found nothing of the sort. Almost immediately upon entering that pit I realized I was on *terra incognita*. There were not a few species here — there were hundreds! And I recognized almost nothing, either from my knowledge of the Florida fossils or from the recent local fauna. On this unknown land, twenty miles from Chesapeake Bay, I found moon snails, myriad scallops, cones, volutes, sundials, spindles, top shells, auger shells, nutmeg shells, turritellas, turrids, wentletraps, limpets of all descriptions, slipper shells, cup-and-saucer shells, gigantic pearl oysters, geoduck clams and



**Larger Maryland Miocene Mollusks.** Left to right: *Busycon coronatum* Conrad; *Conus diluvianus* Green; *Ecphora tricostata*; *Busycon fusiforme* Conrad; *Isocardia markoei* Conrad; *Buccinofusus paricis* Conrad.



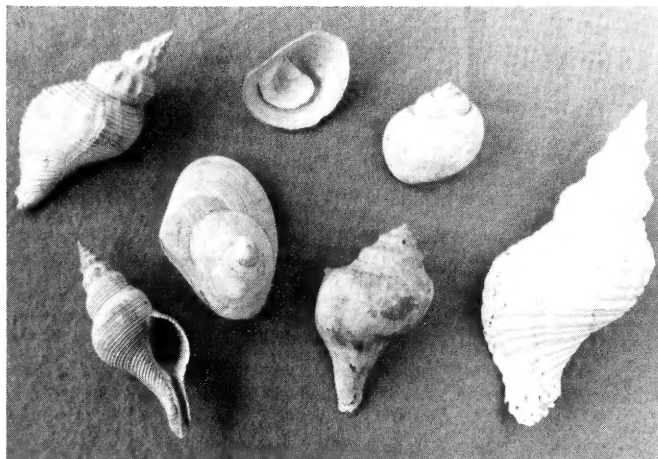


**Smaller Yorktown Formation Gastropods.** Lower row, left to right: *Pterorytis conradi* Dall (dorsal and ventral views); *Lirosoma sulcosa* Conrad; *Scapaspira strumosa* Conrad; *Conus marylandicus* Green. Upper row: *Trophon* species; *Urosalpinx trossula* Conrad; *Trophon tetricus* Conrad; *Peristernia silicata* Conrad; *Architectonica nupera* Conrad; *Fossarus lyra* Conrad; *Compsodrillia chowanensis* Gardner.

cockle shells, not to mention the *Ecphoras*. Since then I have collected many more of the same, and I have found a *Typhis*, bonnet shells, strange *Murex* species, carrier shells, olives, and even stranger genera which, like the *Ecphora*, have gone the way of the dinosaurs.

Obviously, the geological history of the Mid Atlantic States has been different from Florida's past. In the Chesapeake area, in the late Miocene/early Pliocene Epochs, the water was deeper than it is now (as it was in Florida), probably due to the melting polar ice caps. And obviously the Chesapeake enjoyed a warmer climate year round, because the species that lived here were typical of today's warm water regions. The presence of many tropical families Fascioliidae, Turritellidae, Cancellariidae and Terebridae as well as *Oliva*, *Olivella*, *Scaphella*, *Phalium*, *Typhis*, *Xenophora*, *Conus*, *Pterorytis* and *Architectonica* — clearly indicates warm water conditions in the Miocene/Pliocene Chesapeake. Pectinidae, Cardidae, Naticidae, Glycymerididae, Turridae, and such genera as *Busycon*, *Calliostoma* and *Trophon* were well represented too; but these groups are found in all temperate zones, so they are not as indicative of tropical conditions as the first group.

The Chesapeake province, if it can be called that, was somewhat complex. Not all species are found in all localities, and not all species are found at all levels, which in most cases means that species present during one period were absent the next, at



**Some Larger Species.** Lower row, left to right: *Fusinus burnsi* Dall; *Crucibulum grandis* Say; *in situ* on valve of *Eucrassatella undulata* Say; *Busycon amoenum* Conrad; *Fasciolaria cronlyensis* Gardner (Waccamaw Formation only). Upper row: *Fasciolaria scalarina* Heilprin; *Crucibulum auricula* Gmelin; *Lunatia heros* Say.

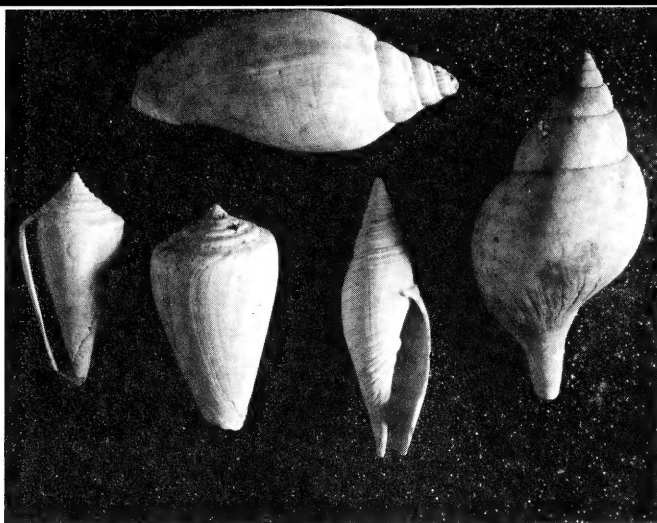
least at any given locality. At least five fossiliferous geological formations in the area are well known. In Maryland alone there are three, all traditionally assigned to the Miocene: the Calvert, the Choptank and the St. Mary's, each formation overlying the older in that order. In Virginia and most of North Carolina, the dominant formation is the Yorktown formation, traditionally assigned to the Miocene but now increasingly considered to be Pliocene. Whatever the actual dating, there is a clear interrelation among all neighboring formations, in that a very significant percentage of species appears throughout the several member formations of the group. In southern North Carolina, the Dupin marls appear, and south of that one finds the Waccamaw formation. Particularly in this formation, many of the Florida forms and species begin to make an appearance, mixing in with the more northerly and endemic forms.

However, few Florida (Caloosahatchie/Pinecrest) fossils are found in the far northern reaches of the Chesapeake formations. The question of which Florida fossils are found in Virginia and Maryland makes for an interesting trivia question, and the answer holds some surprises. Some shellers could guess a few species: *Polinices duplicatus*, *Terebra dislocata* (Say, 1822), *Mercenaria mercenaria* and *Crepidula fornicata* were, and still are, found in both areas. Florida fossil collectors would correctly guess *Conus marylandicus* Green, 1830 by its giveaway name. Beyond that come the real surprises: *Terebra unilineata* (Conrad, 1841), *Sconsia hodgii* (Conrad, 1841), *Xenophora conchyliophora* (Born, 1780), *Crucibulum piliolum* (H. C. Lea, 1845), *Xancus regina*, and *Fasciolaria scalarina* Heilprin, 1887. This group is particularly interesting because all are extinct in both areas except for the carrier shell, still living to the south. In southern North Carolina the number of Florida species increases dramatically — most species with the name of *carolinensis* appear, among many, many others.

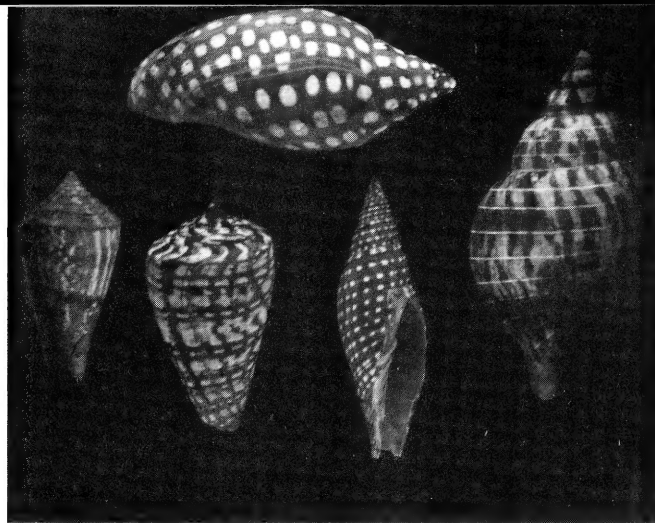


**Unusual Gastropods from the St. Mary's Formation of Maryland.** Lower row, left to right: *Phalium caelata* Conrad; *Typhis acuticosta* Conrad; *Sthenorhytis expansa* Conrad; *Surcula rotifera* Conrad (a turrid); *Cancellaria alternata* Conrad. Upper row: *Eudolium* species; *Terebra (Hastula) simplex* Conrad; *Bulliopsis marylandica* Conrad; *Xenophora conchyliophora* born; *Surcula biscantenaria* Conrad (a turrid).

With this in mind it is of special interest to observe that the Sarasota pit has revealed the presence of a large number of "Yorktown" fossils, as they are often called, or more northerly species, particularly in certain layers deep in the pit. These species include the well-known *Ecphoras*, but also *Chesapectens*, northern *Scaphella* volutes, notably *mutabilis* Conrad, 1834, and other species. It would seem that during this ancient epoch, cyclic fluctuations of hundreds or thousands of years duration brought somewhat warmer conditions, allowing some of the harder Florida species to become established in the north. These warm periods alternated with cooler ones when the northern species migrated south, and the warm water species retreated to more southerly sanctuaries. This pattern repeated more or less uninterruptedly for millions of years. Then, rather abruptly, at the onset of the Pleistocene, something on the order of a natural holocaust must have occurred. A sudden climate change established today's conditions in this marine environment. From Hatteras southward,



**Pliocene fossils under visible light.** Clockwise from top: *Scaphella floridana*, *Fasciolaria hunteria*, *Mitra heilprini*, *Conus cherokus*, *Conus adversarius*. (f11, 1/8 sec. 2 spotlights)



**The same fossils under ultraviolet light.** To eliminate glare from the UV light and allow the fluorescence to show, an orange filter was used for this photo. (f11, 3 min. 2 4-bulb UV lights)

## FLUORESCENCE IN PLIOCENE FOSSILS

by Uwe Heine

During a recent trip to Sarasota, I was disappointed to learn that I would be unable to collect Pliocene marine fossils in the local "shell pit." The high cost of liability insurance has greatly restricted public collecting. Fortunately a local resident who had landscaped her yard with washed shell marl from the local pit graciously allowed me to collect in her yard.

In spite of the destructive mechanical washing process, I found many fine specimens — *Scaphella*, *Strombus*, *Conus*, *Siphocyp- raea*, *Fasciolaria*, *Vasum*, *Turbinella* and many others. The fossils were generally chalky white or gray, with little or no evidence of the original color pattern. Markings are most visible on *Scaphella floridana* (Heilprin, 1887) and *Conus cherokus* Olsson & Petit, 1964, but even these are very faint. And it is likely that exposure to the elements has further bleached these specimens.

Shortly after returning from Florida, I examined these fossils

under an ultraviolet lamp, and found them to show strong fluorescent patterns. The markings on *S. floridana* and *C. cherokus*, faint in normal light, showed bright orange or yellow fluorescence. *Conus adversarius* Dall, 1890, *Busycon spiratum* (Lamarck, 1816), *Cancellaria rotunda* (Dall, 1892) and *Fasciolaria lilium hunteria* (G. Perry, 1811) showed no evidence of color in visible light but revealed their patterns under ultraviolet light. In all cases, the markings corresponded with those expected for each species, based on modern equivalents or other fossil species.

I don't know if this phenomenon is common to all Pliocene fossil shells, is particular to certain localities, or develops only after being sun bleached. Both short wave and long wave ultraviolet light (300 and 365 nm respectively) produced this effect with similar intensities. This method of visualization may be of great value where the markings of a particular species have not been well preserved.

## SHELLS OF THE CHESAPEAKE (cont.)

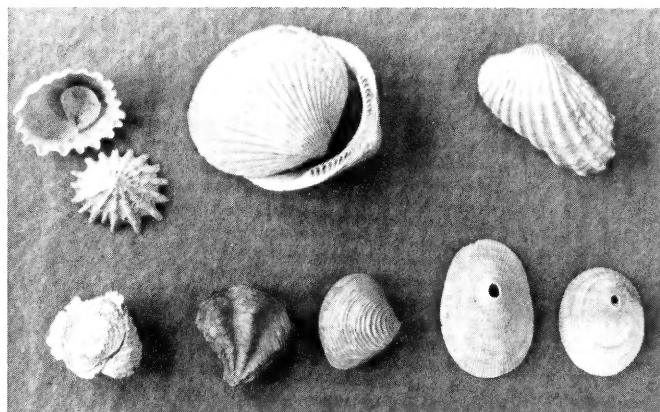
subtropical conditions prevailed and present day Carolinian species took over the coastal areas of southeastern U.S. Conditions must have changed enough however, to have caused a large scale extinction of a rather significant percentage of the former molluscan inhabitants of the Florida Pliocene.

But it was in the Chesapeake area that the real cataclysm struck. Here a diverse marine faunal province hosting many hundreds of temperate water species became a molluscan desert. 85-90% of the molluscan species of the area were annihilated. Lost were two or three species of Olives, several *Olivella*, two winged *Murex*, twenty species of pectens, five *Scaphella* volutes, the *Ecphora*, the world's distribution center for *Ptychosalpinx* whelks, several *Fusinus*, *Fasciolaria*, at least ten species of *Turritella*, a few wentletraps, sundials, *Trophons*, cones, at least ten species of *Calliostoma*, turrids, tellins, and on and on. The Chesapeake became the Lost Colony.

And what survived the cataclysm? You guessed it! Our old and much-maligned friends *Busycon canaliculata*, *Mercenaria mercenaria*, *Crassostrea virginica*, *Polinices duplicatus*, *Lunatia heros*, *Placopecten magellanicus* (Gmelin, 1791) and *Crepidula fornicata*. Hence their distribution centers on the Mid-Atlantic states. The riddle for me was solved — these species with the anomalous distribution patterns are the lonely descendants of a once great marine faunal province. Thanks to those species, I now have a better appreciation for geological history. Also, I think I appreciate those species themselves a little more, knowing what they have survived.

Still, I am an inveterate shell collector, and those species make me a little nostalgic for what the Chesapeake region might have been to us shell collectors, as well as to the scalloping industry. Think of what the scallop dumps would have produced for us then! Imagine having five volutes in your collection from

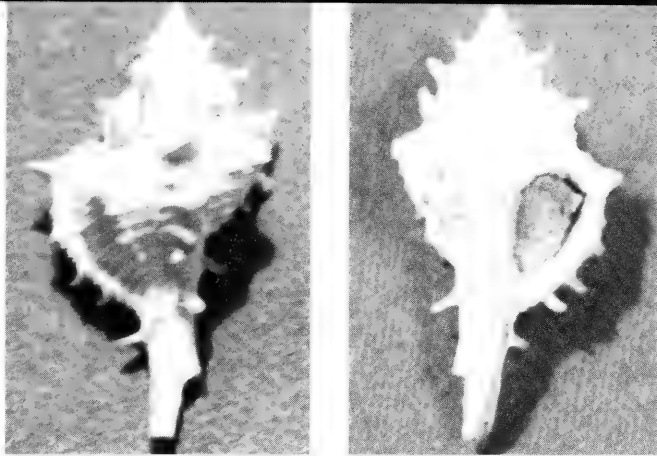
Virginia, or ten *Calliostoma*, or twenty species of scallops in all color forms. Eat your heart out! Better yet, go collect them as fossils, on the landlubbing shores of the Chesapeake Bay — poignant and beautiful reminders of the natural history of our ever-changing, ever-fascinating mother Earth.



**From Virginia.** Lower row, left to right: *Chama congregata* Conrad; *Plicatula marginata* Say; *Astarte undulata* Say; *Diodora catilliformis* Pilsbry; *Diodora redimicula virgilina* Gardner. Upper row: *Crucibulum costatum* Say; *Glycymeris subovalis* Conrad; *Cardita arata* Conrad.

**PROCEEDINGS OF THE MALACOLOGICAL SOCIETY OF LONDON** and its continuation, the **JOURNAL OF MOLLUSCAN STUDIES** (England) — back issues available from American Malacologists, P.O. Box 1192, Burlington, MA 01803.



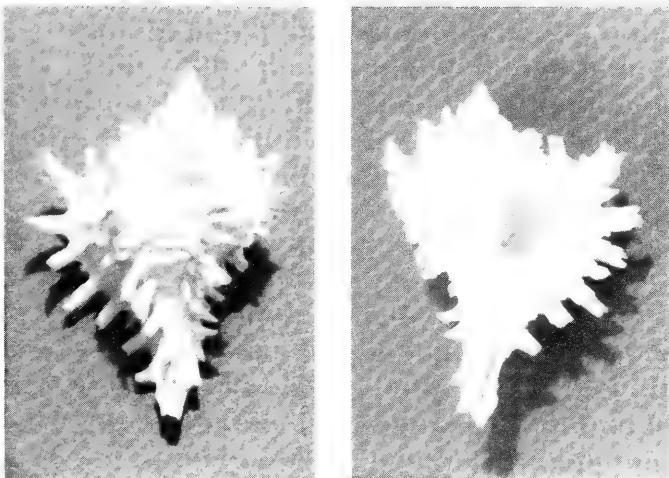


*Murex chipolanus* Dall, 1890. The 34mm fossil from the Miocene age, 16 million years ago, was found in the Chipola Formation, Clarksville, Florida.

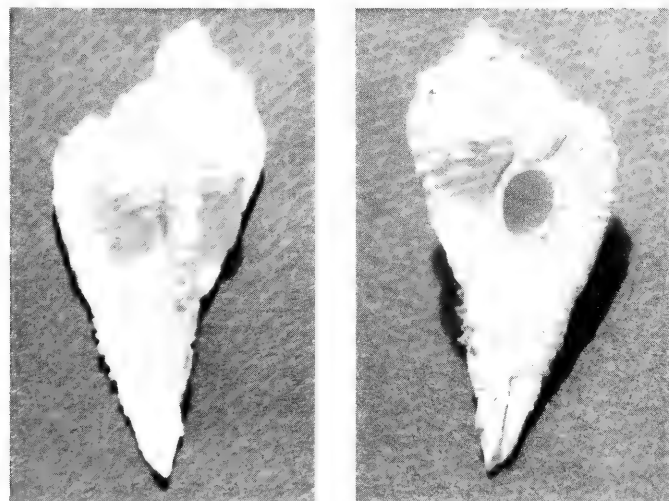
### PREHISTORIC FLORIDA MUREX

by Les Heinzl

Ancient murex are commonly found in the marl pits throughout the state of Florida. These ancestral forms of present day species provide clues as to how many recent murex species evolved. Fossil murex found in various Florida pits indicate not only that most of Florida was under water at various times in the past several million years, but also that the climate was more tropical than today's. Several extinct murex as well as extant species can be found in Florida's Newburn Pit.



A 55mm *Muricanthus* species from the Pliocene, Pinecrest Formation, Newburn Pit, Sarasota, Florida, 2-3 million years old.



*Subpterynotus textilis* (Gabb, 1873) from the Pliocene, Caloosahatchee Formation, LaBelle, Florida, is 60mm.

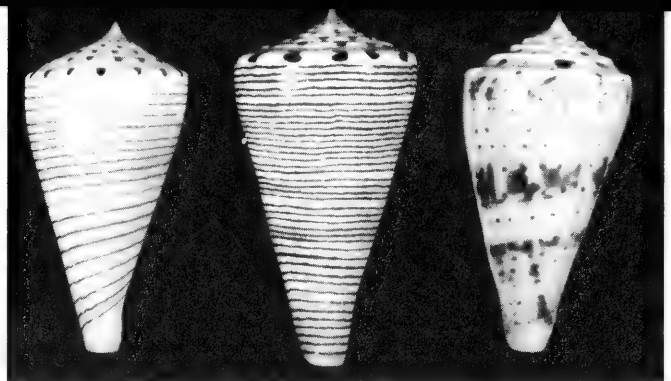


Fig. 1. "Will the real *Conus hirasei* please stand up!"

## THE FINE ART OF DEFRAUDING

by Charles Glass & Robert Foster

On his last trip to the Philippines the peripatetic author came across some of the finest artwork yet produced by the masters of Mactan. We have in the past called your attention to repaired holes, spires and growth breaks, so well camouflaged that even experienced eyes could miss them, but now they have outdone themselves by reproducing the entire pattern for one of the rarer species of Cones, namely *Conus hirasei*. To their credit (and his relief) they did not try to fool him, as, indeed, others have been fooled, with this ersatz mollusk, but pointed out the artistry, claiming that the cone was actually a dead specimen of *Conus ione* that had been "doctored." The deception was so exceptional that he had to have the bogus cone, though not for the considerable price of a *hirasei*!

Back home we compared it to our *hirasei* as well as to our *ione*, both of which are pictured in figure 1, with the phony specimen in the middle, in case you couldn't tell. Frankly we think that our "boys" in Mactan were mistaken in thinking that the artist had used an *ione*, in this case at least, but that the painted specimen is indeed a dead *Conus hirasei* which was painted and then shellacked to give it a passable sheen. The sculpture of the spire in particular doesn't match that of *C. ione*.

We would suggest that any potential purchasers of *Conus hirasei* examine the specimen very critically and that *caveat emptor* very much, indeed, as we saw many other phony specimens around.

### KONK THAT CONCH!

Do Latin names intimidate you? Do you say "Geoduck" or "goeeyduck?" Can you say "Orbigny" and "Röding?" Take the first step toward mastering the language of conchology by learning to pronounce it. Under the tutelage of Tucker Abbott via his newly released cassette tape, **SAY IT RIGHT!**, the tongue-tied amateur can learn how to pronounce the names of all the species in his Golden Guide, **SEASHELLS OF NORTH AMERICA**. Dr. Abbott, on the 35 minute tape, pronounces 1,250 generic and specific names alphabetically, following the index. **Say it Right!** is intended as a guide and not a bible, because even Latin pronunciation is subject to regional influences.

Also included are a pronunciation glossary of conchological terms, some often mis-pronounced common names and terms, family names and the names of scientific authors. **Say it Right!** provides a companion folder containing an index and counter guide to major genera and 100 glossary terms and family names. The cassette is available from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803 for \$10 postpaid.

**AN ANNOTATED CHECKLIST OF THE RECENT MARINE GASTROPODA FROM PUERTO RICO** by Dr. Edgardo Ortiz-Corps, Dept. of Biology, Humaáo University College, Puerto Rico, 743 species, synonyms, all known references, biology, nomenclatural changes, bibliography. American Malacologists, P.O. Box 1192, Burlington, MA 01803. 220 pp. Paperback. \$9 postpaid.



Some of the 50 species of cones collected at Palau.



Cowries — only a few of the many species Palau boasts.

## SHELLING ON PALAU or YOU ARE GOING SHELLING WHERE?

by Alta Van Landingham

Since 1973 I have been in a heat to go shelling on Palau. That year, our daughter gave us a copy of *THE LIVING REEF* by D. Faulkner. The pictures were enchanting, but the text overwhelmed me.

Palau is the oldest of the volcanic islands, older even than Hawaii. Much of the Pacific marine life is suspected to have originated at Palau. If you are a Dedicated Shell Collector, how does knowing that make you feel? You just HAVE to get there, some way, sometime.

This was my year, 1987. I began over a year ago, trying to find a travel agent who as much as knew where Palau was. Even given my "expert" knowledge at telling where it was located, it was still hard to find a travel agent who could come up with a program to get me there. I had several friends who wanted to go to Palau also, so I persisted and finally found a way to get there and a place to stay. On January 18th nine of us assembled at Los Angeles to begin our trip.\*

For those of you who don't know, Palau is in the Western Caroline Islands, Micronesia, due east of the island of Mindanao in the southern Philippines. Owned by Japan until after World War II, it then became a United Nations Trust Territory, administered by the United States. Very recently Palau became the independent Republic of Belau. It is a very beautiful island, and the people are handsome and compatible.

But on to the shelling, which is what this is all about. Our boat captain said he was not a shell collector, but he certainly knew where to take us. The first day on the boat, he was rather quiet and reserved, perhaps taking the measure of our group and trying to decide how to respond to us. He must have figured us out quickly, for on the second day he had his mask and snorkel and he was one of the gang. For a non-shell collector, he certainly knew his stuff. He told us where we would find this and that, and we did. Each stop, he would find a lot of shells and share them with all of us if we wanted them. And mostly we did!! He had better eyes than most of us and found things we didn't see, and he was good about showing each of us what to look for. That is my job as a shelling guide, but I was happy to let him usurp my authority.

We stopped at every type of locality we could find in the waters of Palau — sandy beaches, hard rock bottoms, dead coral bottoms, live coral bottoms, sandy reefs, coral reefs, grassy areas, rocky areas — a wonderful array of habitats. And we found a bit over 200 species, most of which were plentiful. The last two days we all became selective in our collecting: we brought our good finds up to the boat and shared, then threw back many, many shells. All of us had as many shells as we could possibly bring home. Among them were some rare and unusual shells.

I personally found *Conus gloriamaris* and a *Murex annandalei*. The story of my *M. annandalei* began as a joke. I had

been teasing the others in the group at dinner the night before my big find because they are mostly all swimmers and I am not, but I had found many, many more cowries than they had. So, only half jokingly, I said, "Tomorrow, follow your leader and she will show you how to find them." The next day, they were ready for me, and as we jumped off the boat into the water, I was surrounded and someone said, "Oh Great Leader, show us how to do it!" Amidst laughter, I got under water and the very first rock I turned over had *Murex annandalei* on the underside. Somehow, very casually, I plucked it off, stood up, and said, "See, this is how you do it!" I think they were all ready to drown me. The murex was in about three feet of water, under a rock which was resting on clean sand. This species is usually found in deep water.

One thing I should mention here is that any shell I personally found was in less than five feet of water. I use a mask and snorkel, but cannot swim (at all, anyway, ever!). And I found it to be true in Palau, as in the Red Sea and other exotic places I've shelled, that some of the best shells can be found in shallow water. Some divers on our trip did not find as much in deeper water as we found in less than five feet. I am not implying that there are no shells in deeper water — just describing what we found the case to be. The clue seems to be to use a mask and snorkel. Turn rocks and look in among the coral and grasses for the shells.

My pride and joy, the *Conus gloriamaris*, was a dead collected but very perfect specimen. I found it in a little rubble pile about three feet deep, outside a hole in coral which I believe was an octopus hole. In the rubble pile, which I investigated later, after about half an hour of rejoicing over my Glory of the Seas, I found other cones, cerithiums and large Terebridae. My cone is 3½ inches long, with an absolutely perfect lip and spire. Its presence here is quite unexplained, because *C. gloriamaris* is a deep water cone.

Our novice on the trip, Carol Minge, turned up another shocker, a *Cypraea aurantium*. She found it in 3 to 3½ feet of water and it was dead, although it still contained fresh animal remains. We have no idea how it met its end or why it was here on a rock in the shallows. Golden Cowries live in crevices and caves in coral reefs, often on the reef face, in 8 - 20 meters.

While night collecting near our hotel, we found a lot of *Cypraea mauritiana*, mantles retracted, sitting on rusty-colored limestone rocks. We'd search in vain for them by day, on and under the same rocks. But again the next night, there they'd be again, sitting on those limestone rocks, out of the water. *C. mauritiana* usually prefer dark granite or black lava rock, but in Palau they apparently make do with limestone.

We found some 47 other species of *Cypraea* there in Palau. We boated each day to a different location in the Koror area, shelling mostly the rock islands. But the Tiger Cowrie, *Cypraea tigris* chose a different habitat — clean sand among Turtle Grass. I collected a number of them, all sitting on sand, mantle retracted. In fact, that surprised me about all of the *Cypraea* that I collected — almost all were exposed, and not one had the mantle extended. Other places I have collected, *Cypraea* usually had their mantles up, shells hidden, whether they were collected on sand, under

rocks, in grass or in crevices. *Cypraea arabica* were found in all sorts of habitats — under rocks, on sand and grass, again always with their shells exposed.

We found Cones in almost all of the habitats — for instance, I believe the most common cone there was *C. litteratus*. I collected on clean sand, moving among grass, under or on top of rocks, in or under coral. I never found it making trails in the sand as I did the other cone species. I found *Conus boeticus*, *telatus*, *eburneus*, all making sand trails. However, I also found them under rocks and in and under coral. It certainly seems to me that they like a varied habitat.

In my wildest imagination, I never thought I could collect so many *Lambis lambis* that I would say to myself, "Well, okay, today I will not even look at them." But after two days, I had more than I really needed, and shared them, and still found more which I left behind. The same thing happened with *Conus litteratus*, *marmoreus*, *textile*, *striatus*, and so on.

*Terebellum terebellum* have always fascinated me, and I certainly never expected to collect my own. But I did. They are the feistiest little animals! I could hardly keep them in my hand — they were on the move, and fast!

*Harpa major* is also a fascinating animal. It is beautiful too, patterned just like its shell. It does a strange thing I have never seen another shell do. When the animal is touched, the first and maybe the second section of the foot drop off. I suppose it is a survival thing — if they lose a segment, predators think that's all there is. I have had over 600 live species in my aquariums to observe and handle, and I really thought I had seen just about everything. But it certainly was a shock to me to see segment after segment drop off of that harp.

On the sandy bottoms outside the reef, we collected terebras — I found nine different species of terebras! I am not sure how I managed to collect even one of them, because the current was terrible, and I was badly beaten around. But through all of that, I did manage to collect. I found them in water 4-5 feet deep by following their trails in the sand. Even though it was awfully rough that day and the current was running strong, terebras were moving around and were easy to spot, just hard to get to!

Being a non-swimmer, I was always making sure the boat was in sight, and on some of these reef trips, I was verrrry leery. I looked up one time, and the anchor of the boat was bobbing along at a fast clip. I tried to catch it, but the water got too deep for me, so I yelled my lungs out for someone with authority to come and catch it. Finally someone did.

That time, and lots of others, I wondered, "What am I doing here?" but then later, something wonderful would turn up and I would know exactly what I was doing there, and I wouldn't have it any other way.

\*We represented several different states and shell clubs: from the North Carolina Shell Club came Shirley Collins, Willis Slane,

Marguerite Thomas and myself. From the Gulf Coast Shell Club were Jean and Pete Clark, Jane Stark, and again, yours truly. Pat Burke represented the Sanibel Club, and a novice collector from Rome, Georgia, Carol Minge, made the ninth.

**Entrainment of Larval Oysters**, Special edition No. 3 of the AMU Bulletin, reports the proceedings of a symposium on the larval biology of the American Oyster, *Crassostrea virginica*, the factors that limit its productivity, dispersal and survival. It may be ordered from AMU Corresponding Secretary Paula M. Mikkelsen, Harbor Branch Oceanographic Institution, 5600 Old Dixie Highway, Ft. Pierce, FL. 33450-9719, at a cost of \$14 to AMU members, \$20 to non-members.

**COMPENDIUM OF SEASHELLS** (third printing, revised) by R. Tucker Abbott and S. Peter Dance. 1986. 411 pp., color photographs. American Malacologists, Inc. \$49.95.

This book has proven to be a most popular and very useful book since the first printing in 1983. The third printing, with its green binding and dust jacket, has afforded the authors the opportunity to make some forty changes in nomenclature indicated by recent research studies and sharp-eyed conchologists.

## WHAT'S EATING MY SHELLS?

by F. R. E. Davies

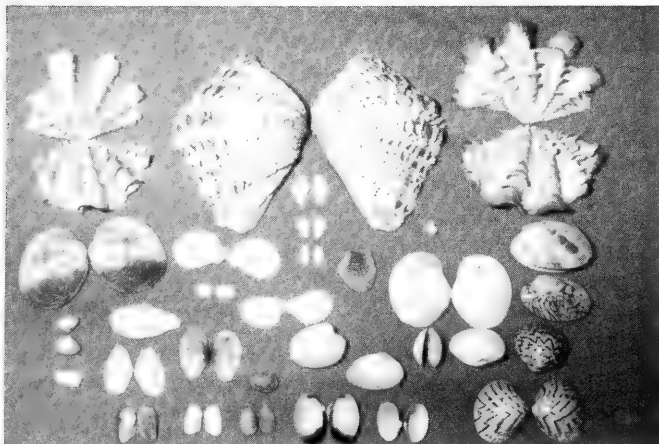
No doubt most readers of the **COA Bulletin** observed, in the December 1986 issue, the short note from the Bishop Museum Department of Zoology regarding the deterioration of the polished surface of many shells, known as Byne's Disease. This condition was drawn to my attention by Mrs. Thora Whitehead of Brisbane, Australia, during our continuing correspondence.

Thora has supplied the following information, together with a number of eroded specimens:

1. She has no problems with shells stored in metal cabinets.
2. Cabinets which incorporate "chipboard," made with a lignin-base glue, are worse than her solid wood cabinets.
3. Some glossy shells showed noticeable dullness as early as the fifth month. Some cowries left undisturbed for 20 years were chalk white.
4. In her wooden cabinets the shells never occupied more than one-third the volume; i.e. there was a large head space. (This confirmed a theory of mine — that the etching would be greatest on the upper horizontal exposed surfaces, but with observable damage on surfaces within a mass of shells left undisturbed over a long time.)
5. There is a vast range of susceptibility to Byne's Disease amongst the various mollusks — almost every specimen of the Bullidae and Marginellidae was affected, while her bivalves showed no visible effect.

Byne's first paper was published in 1899 under the title "The Corrosion of Shells in Cabinets." He concluded that the problem was caused by living organisms, hence the use of the word "disease," and he declared that the etching was caused by butyric acid from the cabinet wood acting on the calcium carbonate of the shells. In 1985, N. H. Tennent and T. Baird published a detailed paper on the subject, and their extensive and thorough analyses determined that most of the efflorescence was produced by the volatile acetic and formic acids generated from the oak cabinet wood. Their investigation deals only with molluscan storage in oak cabinets in the temperate climate of northwestern Europe. This article addresses the long-term storage of collections where annual cycles of seasonally hot, humid weather prevail. These are the typical monsoon and trade wind areas of the tropics and subtropics — northeast Australia, the middle American coast from Chesapeake Bay to the Caribbean, Southeast Asia, and many micro-zones such as the windward side of the larger Pacific islands — Hawaii for instance.

Since the etching is a problem only in containers made of wood or wood products (cardboard or paper), we must consider the derivatives of wood as possible culprits.



All photos by Alta Van Landingham

A few of Palau's many bivalves.

1. **LIGNIN** — This complex substance could be called the connective tissue of trees. Although commercially important, it is non-volatile and has no direct effect on stored shells. However, in the manufacture of bleached wood pulp, the lignin is removed by the use of sulfite; thus cardboard, paper, even tissue paper, may carry residual traces of sulfurous acid. This acid is very volatile and could be a minor source of etching, especially in a warm, damp atmosphere.
2. **ROSIN and ROSIN OIL** — Some is present in all coniferous lumber. Since rosin and rosin oil are constituents of most wood finishes — stains and varnishes for example — and rosin oil is an essential ingredient in paint dryers, most printers' inks, glues and plaster sizes, this could be another trace source of trouble. (See next two items.)
3. **ABIETIC ACID** — This may be considered purified rosin, with the same minor effects possible. But it can also act as a substrate (food) for the growth of lactic and butyric acid-producing bacteria. In warm, damp atmospheres it is possible to have traces of these acids formed; both are strong enough to etch mollusc shells. Actually, this suggests that Byne's conclusions may, in part, be correct for the specimens he investigated!
4. **SUCCINIC ACID** — This acid occurs in some fossils and resinous woods, and it is produced by microscopic fungi and lichens. It is one of the stronger organic acids, and even in minute concentration could cause trouble.
5. **ACETIC ACID** — After reading the Tenant-Baird paper (see paragraph 3 of this article), it seems clear that oak wood near shells creates a potential problem, but read on. In diluted form, acetic acid becomes vinegar, which is used in every household. It boils at about the same temperature as water and has similar vapor tensions to water. In an atmosphere of high humidity, even minute traces of acetic acid will eat up your shells! It is advisable to keep all substances which contain or could generate acetic acid in a spot remote from your shells: foods such as pickles, sauces and dressings, many drugs (aspirin and similar remedies) paint solvents and stripping mixtures, etc . . . If you think this is nitpicking, remember that we are talking about minute concentrations of chemically active substances, elevated temperatures and long spans of time.

Beyond any doubt the real "devil" is **CARBON DIOXIDE**, in combination with high humidity and a cycle of warm days and cool nights. To understand this, we must first consider some basic facts about carbon dioxide ( $\text{CO}_2$ ) and water ( $\text{H}_2\text{O}$ ).

Although it constitutes only 0.3% of air, at  $20^\circ\text{C}$  it is about thirty times as soluble in water as oxygen. The significance of this observation is that when humid air cools and the vapor condenses to drops of water — rain or dew — the  $\text{CO}_2$  is leached out of the air. Even more important is the fact that when  $\text{CO}_2$  dissolves in water, each molecule combines chemically with one molecule of water ( $\text{H}_2\text{O}$ ) to form carbonic acid ( $\text{H}_2\text{CO}_3$ ). This acid is strong enough to react with calcium carbonate, the major component of mollusc shells, and induce a reaction known as the carbonate-bicarbonate cycle.

Now for the curve ball! The free carbonic acid attacks the calcium carbonate to form calcium bicarbonate, which is soluble in the carbonic acid contained in dew. When a droplet of "dew" evaporates, the calcium bicarbonate reverts to a speck of calcium carbonate, now removed from its original location in the shell. During this reaction, all the  $\text{CO}_2$  is regenerated into the closed system when the atmosphere warms up again during the day, thus completing the cycle.

It must be realized that this condensation or dew forms on the fastest cooling surfaces in the system, those that are the better heat conductors. In descending order these are metal, shells and wood. Clearly, in a metal container, the shells do not attract this carbonated dew, but in a wooden or cardboard container, they do.

Although this scenario implies a modicum of etching daily during a long rainy season, the layer of condensation is only a few

molecules thick, and in each cycle, the effect last for only a few seconds, until the bicarbonate is exhausted. Each time this happens, the  $\text{CO}_2$  is recycled, so, in theory, it stays in the system indefinitely. As the Scots express it, "Many a mickle makes a muckle," and over a period of years the deterioration can develop into a disaster.

Clearly the degree of erosion is dependent on the type of surface of each species, together with the variable sparing nature of the chitinous matrix in which the calcium carbonate crystals of the shell are embedded. Further, in nature, calcium carbonate exists in two mineral forms. Most mollusks and corals lay down the harder form, aragonite, which, over a long span, tends to convert to the softer calcite. Put in simple terms, the longer shells are stored, the more susceptible they become to erosion and other damage.

We are faced with the knowledge that Byne's Disease is not a single entity, but rather a host of factors, whose one common characteristic is the slow deterioration of your shell collection. Soon I hope to offer some recommendations for slowing this insidious destruction. This in itself could develop into a formidable task, and will require considerable investigation. Meanwhile, if your grandmother's pearls have been left neglected for the past thirty years, perhaps you should take a look-see.

Ted Davies is a retired organic chemist from Vancouver, British Columbia who has worked in food and drugs, fisheries and oceanography on every continent. He is editor of the Vancouver and District Shell Club newsletter, "Shellnews from Vancouver."

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- Norman H. Tennent and Thomas Baird. 1984. The Deterioration of Mollusca Collections: Identification of Shell Efflorescence. *Studies in Conservation* V. 30 (1985), pp. 73-85.



*Morum uchiyamai* Kuroda & Habe in Habe, 1961.

## ADDENDUM TO "A PICTORIAL REVIEW OF THE GENUS MORUM"

by Charles Glass & Robert Foster

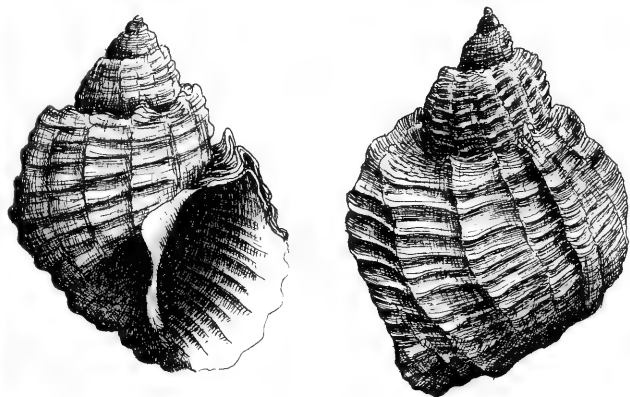
*Morum uchiyamai* Kuroda & Habe in Habe, 1961

In the December, 1986 issue we published "A Pictorial Review of the Genus *Morum*" (COA) Bulletin, Vol. 14: 4, pp. 67-69, with 37 figures). Subsequently we were fortunate to obtain a specimen of an additional species, supposedly not that uncommon but nearly impossible to obtain, though that seems contradictory. The species is *Morum uchiyamai* Kuroda & Habe in Habe, 1961. Our specimen (AbS 87-022) was trawled in 600 feet by coral boats, supposedly off Kaohsiung, Taiwan; it is 53.5mm long; the shield is thick and white.



## FOSSILS AT THE SHOWS

Bill Boger, Bet Hamilton and Jean Highsmith all won major awards with their fossil entries at Spring shell shows. Each had a bit to say on the subject.



*Trigonostoma druidi*, a pen and ink drawing by John Timmerman.

### CELEBRATE THE FOSSIL

by Jean Highsmith

High noon! Temperature is 115° on the pit floor. Wet and ecstatic, I ease the encrusted *Trigonostoma druidi* (Olsson & Petit, 1964) from its ancient resting place. Surely a celebration moment for a novice fossil shell collector!

Celebration began for me months before on a crisp November day in 1985 when COA members Pete and Virginia Lee of Fort Myers, Florida took me on my first fossil shelling trip to the Newburn/APAC pit near Sarasota. Months and several sites later, after some 700 collecting hours and as many again for cleaning, identifying and cataloging, I realized I had just opened the door to a world of beauty and mystery.

I was to learn that fossils are anything of an organic origin which has been preserved by natural causes in the earth's crust prior to recent geologic times — present to 11,000 years ago. My little *druidi* came out of the Pinecrest Beds laid down during the Pliocene Epoch, 1.8 million to 5 million B.P. (Before Present). In 1970-72 corals from some of the Pinecrest Beds were dated at 3.7 million years B.P. using the helium-uranium method. Ancient? Certainly! But geologic infants when compared to an age of over 400 million years B.P. for the oldest known gastropods.

In southwest Florida, recent *Trigonostoma*, a genus of Cancellariidae, is probably represented by only one species, an uncommon one, *Trigonostoma tenerum* (Philippi, 1848). Five or more fossil forms are found at the Newburn/APAC Pit. While they are not exactly abundant, most collectors have good specimens. Where did all our *Trigs* go and why? That is only one of my mysteries.

For me, these pristine fossil shells have provided a rich and rewarding study. My small two year collection reflects only some 200 species from 60 families, but for me it is both a beginning and a celebration of the past.

### ECPHORA

by Bet Hamilton

On one of my first trips to the fossil pit, my friend Iva Thompson stepped on a shell. My beginner's eyes were on the ground and I snatched up the fossil she had passed over. "Iva, what's this?" I asked. "Instant kill!" she replied, "Only the shell everyone comes here to find!" It was *Ecphora* (*Latecphora*) *bradleyae* Petuch, in manuscript, named for Mrs. Evelyn Bradley of the

Sarasota Shell Club. It was very large, measuring almost 5" from tip to tip, and in near-perfect condition. And it has since won me Shell of the Show in the Fossil Single Shell Division at Sanibel in 1984, and this year the Self-Collected Shell of the Show at St. Pete.

And I have learned a little about the *Ecphora*, an extinct genus in the Muricea superfamily, living from the Cretaceous to the Miocene, and, like modern murex, boring holes in the shells of their prey. Say named it, the first fossil to be named in the New World. The name *Ecphora* pertains to the zone or bed where the shell rests, usually sandy clay. *Ecphora quadricostata* is a geological index marker fossil from the Miocene period.

### FOSSILS AND FOSSILING

by Bill Boger

Florida has many beautiful fossil shells to offer the collector, both rare and common. Fossil shelling is coming alive as more and more shellers become interested. You see lots and lots of shellers climbing, sliding, raking, crawling, digging, kneeling in mud, sitting twenty feet up on mounds of shell and dirt, lying down using a magnifying glass, hauling large buckets and carrying armloads of large, heavy shells to put in a car.

This brings us to the miniatures, which we find inside those large, heavy shells; I've found microscopic varieties as interesting as the larger shells. And, believe me, there are a lot of the little ones.

Each time we wash out a big shell, we find dozens of tiny ones in the dirt. So we carefully wash the large specimens over a screen. We have two metal sawhorses, 40 inches high and 68 inches long. On these we put two large window screens, screen to screen, over corrugated sheet iron to carry the weight of large shells — a big *Pleuroploca gigantea* or a *Mercenaria campechiensis* fossil can hold a lot of dirt. With a small nozzle on the water hose we squirt the sand and miniatures out on the screen. Then we pick up the little treasures with very light tweezers which I make from the tops of aluminum coffee cans or nut cans with a peel-off top. These will hold the tiny delicate specimens without pressure and avoid breaking them.

We find these fossils almost everywhere in Florida, wherever excavators have made them accessible. During the years that the state was building roads, cities and dikes all over the place, many excellent collecting spots turned up. Some are still available and some have vanished. During the 1930's when the Corps of Engineers built levees around Lake Okeechobee, collectors found many nice fossils.

In the 1960's a dragline widened the Caloosahatchee River and we found lovely things at Ortona Lock. The Belle Glade Rock Pit was a mine of unusually interesting finds; under water today, it was a sort of missing link between the Caloosahatchee and Fort Thompson formations. My wife Doris and I were first introduced to the thrill of picking up fossil Junonias and the gorgeous little *Typhis floridanus* along the Kissimmee River when it was dredged during the 1960's. Nowadays, we shell mostly at the Newburn Pit near Sarasota, or at the Desoto Pit near Arcadia.

Fossil collecting has a few advantages over recent shells. Fossils never smell, even when left uncleaned for weeks. And you can take lots of specimens without feeling greedy, for after all, they have already been dead for several million years. In the end, they will just be crushed to make roads. Fossils may not have the color that recent specimens do, but some of them still retain some gloss and color after all those years. And many have exquisite sculpturing, with frills and ruffles intact, in spite of time and bulldozers.

Once you have collected them, fossils need to be identified. This is not easy — it takes a good 30X microscope to see the patterns and identifying points, especially on the miniatures, as well as a lot of time and patience. But it is worth all the effort when you win an award.





Photos by Don Young

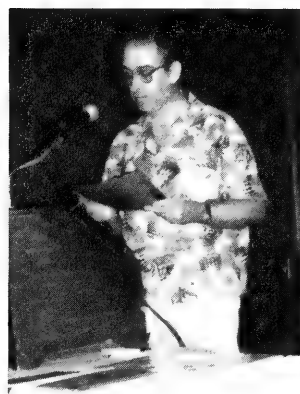
Going, GOING, GONE! Marty Gill gets top dollar for another shell while associate Sol Weiss watches for last minute bidders.

## DID WE MEET YOU IN ST. LOUIS?

Alan Gettleman, blowing a Triton's Trumpet, convened the 15th Anniversary Convention at the Days Inn at the Arch, St. Louis, on Tuesday, June 23. Rick Vogel, bedecked with a *Cypraea aurantium* necklace, gave the invocation. Greater St. Louis Shell Club President Frank Frumar welcomed many of the 165 registrants from 20 states and Panama and the convention was underway.

Tuesday's programs were "Colors and Shapes of Shells" by George Karleskint; "Shelling in Indonesia and Malaysia," by Richard Forbush; and "Tumult in the Rivers — The Story of the Freshwater Pearl Button Industry," by Dr. Gregg Bogosian. President Richard Goldberg gave a short presentation on "COA Sartorial Splendor," — slides of former COA convention attendees sporting varied shell fashions.

A get-acquainted reception culminated in a spectacular hors d'oeuvres buffet. County Executive Gene McNary proclaimed "COA Week" in St. Louis County, and the GSLSC presented a *Conus gloriamaris* to Executive Director Dwight Crandall of the St. Louis Science Center.



Walter Sage, COA Treasurer.



Mary Ellen Akers, COA Secretary.

A continental breakfast three mornings enabled attendees to avoid the usual breakfast hassle. Wednesday's programs were "Shelling in Palau, Micronesia," by Alta Van Landingham; "Operculums and Apertures," by Stanley and Bobbie Phillips; a quick review of "COA — 1986 — Ft. Lauderdale," by Ben and Josy Wiener; "Hosting a COA Convention," COA's own new tape and slide program put together by Richie Goldberg and Don Young, and available to shell clubs and interested groups; "Landshelling in Jamaica," by Richie Goldberg; "Shelling in New Zealand," by Al Chadwick; "Around the World in 80 Dives," by Twila Bratcher; and "My, What Big Teeth You Have, or Radula Rhapsody," by Bob Lipe.

A luncheon at Hannegans in honor of the COA's two-year-old Club Liasion Program provided an opportunity for Club Representatives from 22 Clubs to meet and offer suggestions on how COA and the clubs might assist one another.

At the famed COA Auction Wednesday evening, Marty Gill, auctioneer extraordinaire, urged sales to an all-time high. Generous contributions of rare and common shells, fossils, art fabric and books endowed the auction and every session with an extra dash of excitement. The following donors of auction items



Alan Gettleman presenting Myrna Golden a door prize.



Hank Foglino and toga.

and doorprizes deserve the gratitude of all COA members for making this one of the most successful COA conventions ever:

R. Tucker & Cecelia Abbott  
John Baker  
Yvonne Bequet  
Billee D. Brown  
Carfel Shell Export  
Phillip Clover  
C. & E. Coucom  
Donald Dan  
Fernando Dayrit  
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Tom Shepherd  
Dieter Schierenberg  
Sue Stephens  
Charles E. Tuttle Publishing Co.  
Doris Underwood  
University of Hawaii Press  
Alta Van Landingham  
Vicky Wall  
Donald J. Young

Thursday, **Don Pisor** presented "Australia and South Pacific Shelling." **Hank Foglino** spoke on "Oceanography," **Homer Rhode** gave a presentation on "Shelling and Dredging, Montijo, Panama," and **Phil Clover** made a few comments about recent shell publications.

That afternoon, while COA Board members were closeted in their third meeting of the convention, **Ellie** and **Lee Baris** of St. Louis conducted a walking tour of the riverfront, the Gateway Arch, and the Museum of Westward Expansion. Thursday evening, a dinner cruise on the "Mighty Mississipp" aboard the "Huck Finn," complete with at three piece Dixieland jazz band, prime rib dinner and a distinctive concoction labelled "Mississippi Mud" entertained COA members.

Friday's programs featured presentation on "Ozark Basin Mollusca" by **Alan Buchanan**, "American Naiad Mollusca" by **Dr. David Stansbery**, and "Those Variable Terebras" by **Twila Bratcher**. **LaVern Niere** presented a brief history of the COA with a tribute to all its presidents, six of whom were present: **Bill Bledsoe** (1976-77), **Wayne Stevens** (1981-82), **Richard Jones** (1982-83), **Dick Forbush** (1983-85), **Anne Joffe** (1985-86) and **Richie Goldberg** (1986-87). The St. Louis group topped off the morning with a 15th Anniversary cake and punch.

The Annual Business meeting lasted a mere 40 minutes, time enough for President **Richie Goldberg** to elicit the following: The Long Island Shell Club is nearing publication of its COA-assisted monograph on local mollusks; COA grant recipient **Rudiger Bieler** anticipates publication of his monograph on Architectonicidae; the computerization of the Bulletin and COA membership records is well underway; the COA Bulletin will undergo a name change — **American Conchologist**— and an editorial advisory board has been appointed; COA Grand Trophy rules have been standardized; and the Southwest Florida Conchological Society will host the 1988 COA Convention at the Sheraton Harbor Place in Fort Myers, July 11-15.



COA President Richard Goldberg and R. Tucker Abbott.



Dr. Alan Solem, COA Banquet speaker.

COA will make the following grants this year: \$800 to **Dr. Roger Hanlon** to assist in publishing costs for his research on cephalopods; \$500 to **Dr. Charles Bowen** for purchase of an electrophoresis unit for his continuing study of the Pacific Haliotidae; and an amount not to exceed \$500 to **Lindsey T. Groves** toward his Master's thesis expenses on Southern Californian molluscan paleontology.

**Mary Ruth Foglino**, Chair of the Nominating Committee, presented the following slate of officers for 1987-88: President — **Donald J. Young**; Vice-President — **Alan Gettleman**; Treasurer — **Walter E. Sage, III**; and Secretary — **Mary Ellen Akers**. The officers were elected by acclamation.

The Dealers' Bourse got underway by mid-afternoon, ran until 11 p.m. and continued on Saturday morning. Twenty-three dealers transported their inventories to St. Louis to the conventioners' delight.



Stan Phillips examining specimens at COA Dealers' Bourse.

After a social hour, the final fling of the Convention, the 1987 COA Banquet, got underway to the strains of Don McCleary's piano. Newly-elected president **Don Young** gave a plaque of appreciation and a splendid clock to **Richie Goldberg**, representing COA's gratitude for his dedicated service as president. Then "Professor" **Sonny Williams** performed "shell games" and other feats of legerdemain, followed by **Richie Goldberg's** interview with the "2000-Year-Old-Sheller" (**Hank Foglino** in a braided wig and a sexy toga). The evening and the 1987 Convention culminated in the slide presentation of the featured speaker, **Dr. Alan Solem** of the Field Museum of Natural History in Chicago. He spoke of "The Challenge of the Land," illustrated with slides of his recent trip to the arid Australian outback.

So ended the 15th Anniversary Convention of the COA. A standing ovation was given to Co-Chairs **LaVern Niere** and **Alan Gettleman** and their dedicated Greater St. Louis Shell Club crew. Their unbounded energy, gracious hospitality, and full year's efforts made COA '87 a truly memorable convention. Thank you, GSLSC!



LaVern Niere presenting husband Al Niere his *Cypraea aurantium* raffle prize.



President Don Young and outgoing President Richie Goldberg.

## COA TROPHY WINNERS



Southwest Florida Shell Show, Ft. Myers, FL, Jan. 16-18

WINNERS: Mary and Bart Zanarini

TITLE OF DISPLAY: Family Muricidae

Mary and Bart exhibited 18 cases of *Murex* to win the COA Grand Trophy at Fort Myers this year. The Zanarinis are long-time members of the Southwest Florida Shell Club, and Bart is a past president. They have previously won the COA Grand Trophy for a *Cypraea* exhibit.



Greater Miami Shell Show, Miami, FL, Jan. 30-Feb. 1

WINNER: David Green

TITLE OF DISPLAY: Seashells of the World

Consisting of 20 cases spanning 40 feet, this exhibit includes representatives from many molluscan families, and discussion of habitats, anatomy and behavior of the animals. Prior to winning the COA Grand Trophy, Dave's exhibit had also won the DuPont Trophy. Dave is president of the Central Florida Shell Club.



Astronaut Trail Shell Show, Melbourne, FL, Jan. 22-25

WINNER: Alfredo E. Romeu, M.D.

TITLE OF DISPLAY: Tree and Land Snails of the World

The exhibit consisted of 20 cases, extending 50 feet, of worldwide land snails, including an extensive collection of *Polymita* and *Liguus* from Cuba. Dr. Romeu, of Jacksonville, Florida, started collecting land snails in his native Cuba as a child. He and his wife and sons escaped from Cuba in the late 1960's. Some years later, his collection was smuggled out of the country.



St. Petersburg Shell Show, St. Petersburg, FL, Feb. 14-15

WINNER: Rick Gibson

TITLE OF DISPLAY: Volutes in Depth

Rick Gibson's winning exhibit featured his specialty, the family Volutidae, arranged geographically. A tropical fish dealer from Tampa whose worldwide shell collection now numbers over 4,000 species, he has travelled all over the world to enrich his collection.

#### Happy Anniversary, Sanibel Shell Fair!

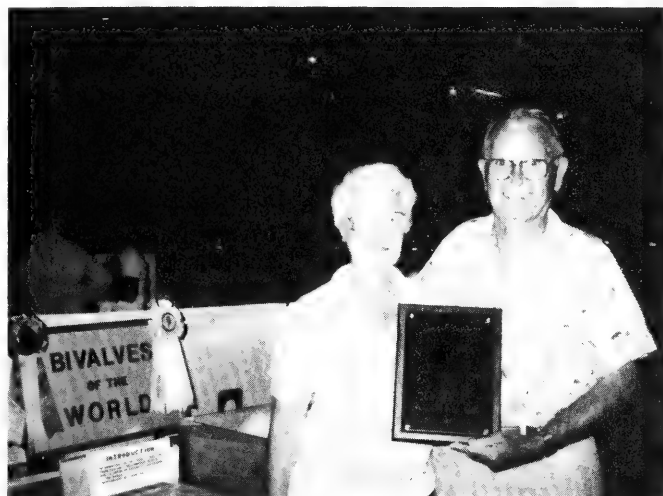
March 5-8, 1987 was the Golden Anniversary or Diamond Anniversary of the Sanibel Shell Fair, depending upon how you count. Sanibel and Captiva have been famous for shells since the 16th century. By the early 1900's it had become the custom for guests at the islands' two hotels to end the winter season by displaying their shells in competition for a blue ribbon. The competition grew in size, organization and reputation, until it became the internationally famed "Tiffany of Shell Shows" we know today. We wish you many more, Sanibel!

Sarasota Shell Show, Sarasota, FL, Feb. 20-22

WINNERS: Kay and Les Easland

TITLE OF DISPLAY: Bivalves of the World

Kay and Les Easland won the COA Grand Trophy and the Most Beautiful Display Award for their exhibit of the world's bivalves. Word has it that collecting bivalves is the new trend. Congratulations, Kay and Les!



Fiftieth Anniversary Sanibel Shell Fair, March 5-8

WINNER: Roberta Cranmer

TITLE OF DISPLAY: Molluscan Treasures from the World's Oceans.

Roberta's beautiful exhibit contained six cases of rare shells taxonomically arranged, with emphasis on geographical distribution. Roberta lives in Louisville, Kentucky, where she belongs to the Louisville Conchological Society. A shell collector since 1970, her major interests are the Muricidae, Conidae, Cypraeidae and Pectinidae. Her exhibit featured a pecten named for her, *Somalipecten cranmerorum* Waller, 1986.

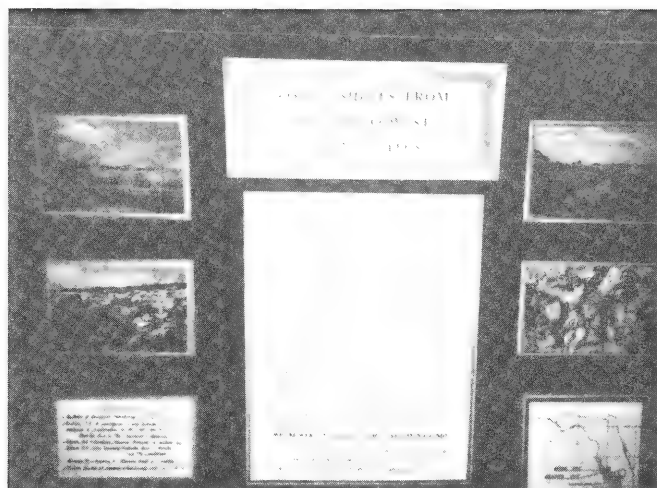


Marco Island Shell Show, Marco Island, FL, March 10-12

WINNER: Jean Highsmith

TITLE OF DISPLAY: Fossil Shells from Two Southwest Florida Sites

Jean's exhibit contained nine cases of molluscan fossils from the APAC (Newburn) and Desoto Pits. The exhibit answered common questions about fossils and showed photos of the sites and of fossil mollusks *in situ*. Jean lives on Sanibel Island, where she is educational chairperson for the Sanibel Shell Club. See her article on fossil collecting elsewhere in this issue.



Display backboard from Jean Highsmith's winning fossil exhibit.

Georgia Shell Show, Atlanta, Georgia, March 25-27

WINNER: Bunny Fulton

TITLE OF DISPLAY: Shell Potpourri

Bunny's prizewinning educational exhibit contained 24 feet of facts about mollusks, from fossils to religious symbols, mythology, pearls and pearl buttons, cones and cone poison, shell color and patterns, state shells, shells that inspired man, were used by man and transformed by man. A fossil from her exhibit, *Trigonostoma hoerlei* Olsson, won self-collected shell of the show.



#### PARDON OUR MISTAKES:

Walter Sage's "Notes on Nomenclature and Labeling" last issue was beset by gremlins. A "correct" example slipped through incorrectly: *Scaphella (Volutiformis) aguayoi* (Clench, 1940) somehow had its underlining extended to the parentheses around *Volutiformis*. Parentheses are never underlined. Also, Walter points out, "In the fourth paragraph, at the end of line 11, I said 'All scientific names should be underlined.' This is obviously incorrect. The line should read: 'All genus, subgenus, species, subspecies and forma names should be underlined — names of higher taxa, i.e., family, are not underlined.'"

In Betty and Bob Lipe's ad for *The Shell Store*, we incorrectly stated that their \$1.00 computer print-out of shells listed 100 species. The list contains **over 800 species!** Sorry, Lipes!



## SHELLS IN PRINT

by Richard L. Goldberg

**"LIVING TEREBRAS OF THE WORLD — A Monograph of the Recent Terebridae of the World"** by Twila Bratcher and Walter Cernohorsky, 1987 [published by American Malacologists, Inc., P.O. Box 1192, Burlington, MA, 01803 — \$54.50]. 240 pp., 68 black & white and 6 color plates.

Major monographs on the "popular" families of marine mollusks are well represented in conchological libraries, providing easy references for curating our collections. It is not often though that monographs dealing with less popular families are published. With the recent release of *Living Terebras*, both the malacological and conchological world can add an important, comprehensive work to their libraries. The authors spent twenty years compiling information and examining the type materials. They treat 268 species as valid and illustrate the type specimen of each, along with additional illustrations showing close-ups and variations to facilitate identification.

The body of the work contains a complete introduction to the family, followed by the systematic treatment of species. Each species is listed with complete synonymies, a description, type locality, distribution, location and measurements of the type, and discussion.

The authors divide the family into four genera and one subgenus. They write that the *Terebra* show a great deal of variability, and it is refreshing to note that no new species have been described. The layout of this monograph is one of the best I have encountered — each species has a number which is cross-referenced to the black & white plates and the index.

On all counts — quality of the content, and printing — this monograph stands out as one of the most important publications of the decade, and will be the standard by which all other malacological publications should be judged. I strongly suggest *Living Terebras* become a part of every conchological library.

## BOARD TALK

From **Vice President DONALD YOUNG**: We are pleased to list the latest shell clubs to select a COA Local Club Representative to act as liaison between their clubs and the COA, bringing the total to 34 participating clubs:

Conchological Club of Southern California	Twila Bratcher
Greater St. Louis Shell Club	Jacob Gettleman
San Diego Shell Club	Billee D. Brown
Northern California Malacozoological Club	Dr. George Metz

The following clubs have chosen successor representatives:

Astronaut Trail Shell Club	John Baker
Sanibel - Captiva Shell Club	Albert Bridell
Sarasota Shell Club	Richard Forbush

Each representative receives information to keep his club up to date on all COA activities and is urged to send ideas and suggestions on how the COA might best serve his club to the COA vice president. He should also send news of his club's activities to the editor of the *COA Bulletin*. We believe this two-way communication will be mutually beneficial in the birth and development of new ideas and the dissemination of information.

We hope that all COA member clubs will "come out of your shell" and take advantage of these benefits. Just have your club president write to the COA vice president designating your club representative, his address and phone number. (He should be a current COA member.) Further inquiries may be made to Donald Young, 11690 Parkview Lane, Seminole, FL 33542.

From **Treasurer WALTER SAGE**: We remind you that the COA membership year is the calendar year, with all dues payable January 1 each year. Members who joined at any time during 1986 were enrolled for 1986 and received four Bulletin issues.

It has been COA policy that the Bulletin be mailed only to paid members. Dues renewal notices were sent out with the December 1986 Bulletin. For a variety of reasons, a substantial number of members had not sent in their dues payments before the mailing date for the March 1987 Bulletin — these members did not receive the March Bulletin with information on the June Convention in St. Louis — an inconvenience for them. A special mailing of dues reminder notices and June Convention information had to be sent to nearly 300 members — a lengthy and expensive job for your officers. Furthermore, March issue Bulletins to late renewals missed the inexpensive bulk mailing and had to be mailed first class at the cost of \$.73 each.

To give members advance notice that dues are payable, we plan to send out 1988 dues notices with the September 1987 Bulletin, and a reminder notice in the December issue. We urge all members to pay their 1988 dues promptly and avoid inconvenience to themselves, as well as extra work and expense for the COA organization.

If you have a name or address change in 1987, please notify COA so we can update our records and see that you receive all mailings and publications promptly. New memberships (with checks) and requests for information should be sent to Membership Chairmen Phyllis and Bernard Pipher; membership renewals should be sent to the Treasurer.

### From Shell Show Chairman DONALD DAN:

#### 1987 Summer and Fall Shell Shows and Conventions

**Oregon Shell Show**, Portland, Oregon, June 6-14. Contact Dr. Byron W. Travis, 4324 N.E. 47th Ave., Portland, Oregon 97218 (503:284-1365).

**Sixième Salon International du Coquillage**, Lausanne, Switzerland, June 20-21. Contact Dr. Ted W. Baer, CH-1602 La Croix, Switzerland.

**Western Society of Malacologists**, 20th Annual Meeting, San Diego State University, California, June 21-25. Contact Carole M. Hertz, President, Dept. of Marine Invertebrates, San Diego Natural History Museum, P.O. Box 1390, San Diego, CA 92112 (619:232-3812 Ext. 228).

**Conchologists of America Annual Convention**, St. Louis, Missouri, June 23-27. Contact Alan Gettleman, 4045 Central Lane, Granite City, IL 62040 (618:931-1312).

**American Malacological Union, 53rd Annual Meeting**, Key West, Florida, July 19-23. Contact Paula M. Mikkelsen, Harbor Branch Oceanographic Inst., 5600 Old Dixie Highway, Ft. Pierce, FL 33450-9719.

**Jacksonville Shell Show**, Jacksonville Beach, Florida, July 31-Aug. 2. Contact Allan B. Walker, 1036 Mantes Ave., Jacksonville, FL 32205 (904:781-1553).

**Crown Point Shell Show**, Merrillville, Indiana, September 19-20. Contact Judy Brooks, 12109 Kingfisher Road, Crown Point, IN 46307 (219:663-2700).

**Guam International Shell Fair**, Agana, Guam, Sept. 26-27. Contact Guam Shell Club, P.O. Box 7867, Tamuning, Guam 96911.

**Panama City Shell Show**, Panama City, Florida, Oct. 2-4. Contact Robert C. Granda, 925 Rosemont Drive, Panama City, FL 32405 (904:769-2876).

**North Carolina Shell Show**, Wilmington, North Carolina, Oct. 23-25. Contact Dean Weber, 510 Baytree Road, Wilmington, NC 28403 (919:799-3125).

**British Shell Show**, London, England, Oct. 31. Contact Geoff Cox, 7 King John's Road, N. Warmborough, Odiham, Hants., RG25 1EE England.

**Attention: Researchers and Shell Collectors.** Announcing **MALACOLOGY DATA NET**, a "new and unique journal devoted to the prompt dissemination of scholarly, innovative and timely information in conchology and malacology." Six numbers a year, \$14.50 per year. Arthur H. Clarke, Editor. Write ECOSEARCH, Inc., 325 Bayview, Portland, TX 78374.

## LETTER TO A BEGINNER — WITH APOLOGIES

*Dr. Abbott wrote this letter recently to an amateur who had asked for information on "how to get started in shell collecting." We pass it along for the benefit of other beginners.*

Dear Beginning Sheller:

I fear you are on the verge of becoming "shell-shocked." This is an ailment that struck me early in life, and one that has afflicted people whom you and I have heard of but never met — Thomas Jefferson, Edgar Allen Poe, Louis Agassiz at Harvard, the present Emperor of Japan, doctors, lawyers and thieves. It's a grand occupation enjoyed by many friendly and sympathetic people who love to collect shells, who appreciate the beauties of nature, and who, to a man, are fired with a desire to save our disappearing natural environment.

May I suggest you get an overview picture of the hobby by reading my **Kingdom of the Seashell**. It's not an award-winning novel, but it does, I hope, delve a little into the primary merits of conchology — the biology of mollusks, shells in art and history, mollusks in cuisine and medicine, how to study shells and where to collect.

Your curiosity and exploratory instincts should get you collecting in your own back yard or nearby seashore. At that point, I recommend **Seashells of North America**, a Golden Field Guide to 850 common marine species with plenty of college-level biology, descriptions of living animals, and some data on geographical distributions and geological histories. It will keep your growing collection organized, in hand, and a source of useful information. Later, if you wish, you can graduate to **American Seashells**. If you need a catalog in which to enter your finds, and wish to know the relative values of your shells, as well as to have a complete listing of most of the collectible families, I suggest you consider getting the **Standard Catalog of Shells**.


Now as to your armchair collecting (that irresistible shortcut to acquiring exotic shells) — you'll want to arm yourself with the **Compendium of Seashells**, a book that the famous English author, Peter Dance, and I put out a couple of years ago. It

illustrates most of the species that dealers sell and that foreign conchologists love to exchange. It can be your "wish book" for a while, but do note that the bibliography is a key to your future education in conchology.

I'm glad you found a copy of my **Collectible Shells**. It was fun collecting most of the shells illustrated in the book. I enjoyed the challenge of the photography, writing the text, designing the book, publishing it and trying to market it. That's something you also can do with some aspect of conchology that appeals to you. Why not join the Conchologists of America, a non-profit band of shell enthusiasts who help each other, put out an informative Bulletin, and have lively annual meetings around the country? There are local shell clubs in most parts of the country. Join one, or even start one.

You may wonder why I've taken so much time to answer your letter, even though I am 300 years behind in my work and writings. It's because I wrote a letter similar to yours about fifty years ago to a Harvard shell professor, Dr. William J. Clench. He patiently answered me in detail and started me on the right track. It's my turn to pass on his kindness. I hope you'll have the chance to take your turn. And my apologies for plugging my books!

Cordially yours,  
R. Tucker Abbott



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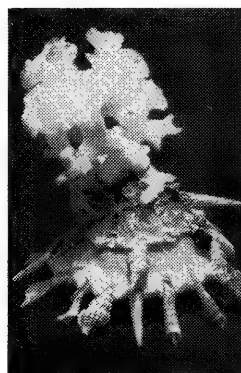
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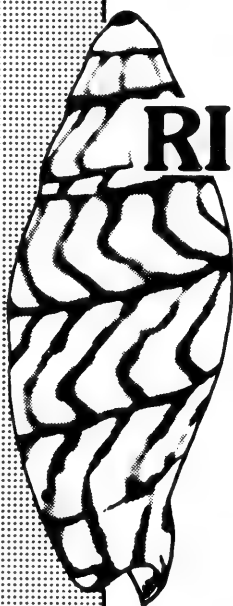
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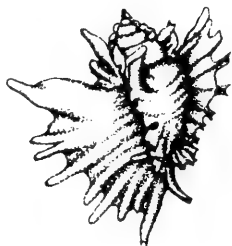
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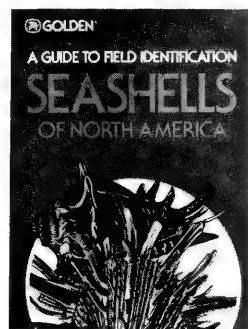


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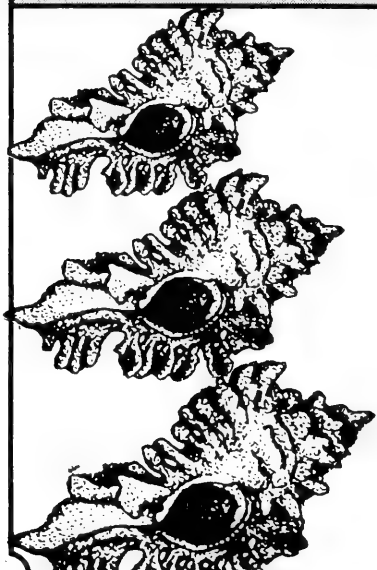
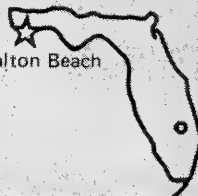
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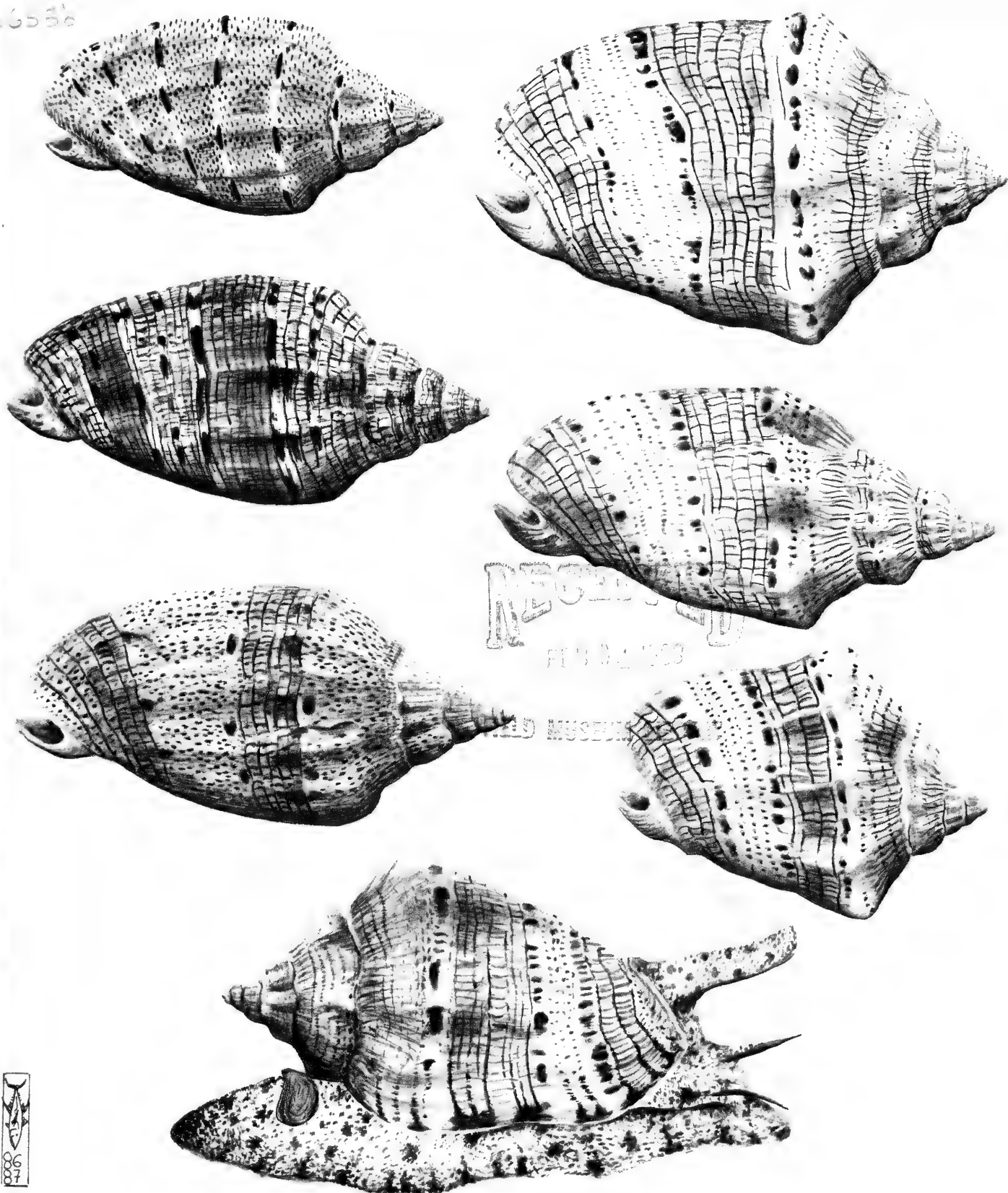
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 15, NO. 3

SEPTEMBER 1987





## CONCHOLOGISTS OF AMERICA, INC.

A Collective Devotion To  
Advancing-  
Conchology.

In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and world. An annual convention is held each year in a different part of the country.

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### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January.

INDIVIDUAL (per year) \$10.00; FAMILY & CLUB (receiving one AMERICAN CONCHOLOGIST) \$12.50; OVERSEAS (Air Mail Postage) \$20.00. New members send check or money order to the MEMBERSHIP CHAIRPEOPLE Phyllis & Bernard Pipher, 1116 N Street, Tekamah, NE 68061. Renewals are sent to the TREASURER. Back issues are available from the Piphers @ \$2.50 each.

Cover: A brush and ink illustration by John Timmerman of *Voluta musica* Linné, 1758 and *Voluta demarcoi* Olsson, 1965 variants: (clockwise from upper right) *V. musica* from Puerto Rico, Martinique, Tobago; *V. demarcoi* from Nicaragua, *V. kotorai* (Petuch, 1981) from Nicaragua and *V. morrisoni* (Petuch, 1980) from Honduras.

### OOPS!

We forgot to mention that **Bev and Al Deynzer** donated a Golden Cowrie, and that **George Karleskint** donated a gorgeous *Pleurotomaria teramachii* as raffle shells at the 1987 COA Convention in St. Louis. And while we're at it, we'd better make note that the **Greater St. Louis Shell Club** donated *Lambis violacea*, their club shell, as a special door prize. Our belated thanks to these generous-spirited COA members.

### RARE TROPHIES DEPARTMENT

It would appear that COA member **Dave Green**, from the **Central Florida Shell Club**, received the only sinistral COA Trophy in existence! However, it was only our gremlin at work again, reversing the photographic plate. Where will he strike next?

### PRESIDENT'S MESSAGE

I am honored and delighted to serve as your president. Believing in the objectives of the COA, and sharing in its many concerns and interests, I'm confident of finding real satisfaction through serving you. I look forward to joining all of you in our continuing efforts to further improve our collective devotion to advancing conchology.

#### Let's go over the 800 membership hurdle!

For several years, COA memberships have hovered at just under 800. Five years ago, when memberships were just over 600, the Bulletin editors set a goal of 1,000 readers. We should certainly be able to persuade at least a quarter of the 9000 plus U.S. Shell Club members that COA is for them.

Instead our memberships are gradually declining. So we really have no choice. If we are to continue as an effective organization, we must increase our membership. Your officers and committee chairmen can help attain this goal. But the burden of recruitment still falls mainly on you, the individual members. The best membership recruitment is one-on-one contact between a COA member and a shelling friend.

To make recruitment easier, your officers will: (A) Ask the COA Club Reps to explain the COA and its objective at their club meetings. (B) Expound the benefits of COA memberships to clubs which don't belong to COA: often they are our contact with their own members. (C) Request shell clubs awarding COA trophies to man a COA publicity booth at their shell shows. (D) Ask COA dealers to actively participate in the membership drive through their business operation. Vice-president Alan Gettleman will coordinate these efforts. Publicity Chairman, Hank Foglino, will forward press releases about the membership drive to appropriate national and international publications.

Inside this issue of the **American Conchologist**, you'll find a COA membership application and the annual dues renewal notice. Please won't you give the membership application to a friend? Few of us don't know at least one person who would enjoy the benefits of the COA. Show that friend a current copy of our great magazine — it is our best salesman. And be sure to tell your friend that all new membership applications received between October 1 and December 31 will receive the Dec. 1987 issue free, as well as the 1988 membership/subscription.

Secondly, the 1988 annual dues renewal notice: If you have not paid your annual 1988 dues to date, I invite you and urge you to do so without delay. Please note — the COA membership year is on an annual basis — Jan. 1 to Dec. 31. Your early dues payment, among other things, will help us to publish an up-to-date membership roster. Do it now! Give a gift or sign up a friend in the COA . . . and pay your 1988 annual dues today!

My ultimate goal for COA this year is to significantly increase membership. I believe and hope you also believe that with everyone's effort and cooperation, together we can meet that goal. Let's utilize our collective devotion to advancing conchology and go over the 800 membership hurdle! Let's do it! **LET'S GO OVER THAT 800 MEMBERSHIP HURDLE!**

Shellingly,  
Don

**PROCEEDINGS OF THE MALACOLOGICAL SOCIETY OF LONDON** and its continuation, the **JOURNAL OF MOLLUSCAN STUDIES** (England) — back issues available from American Malacologists, P.O. Box 1192, Burlington, MA 01803.

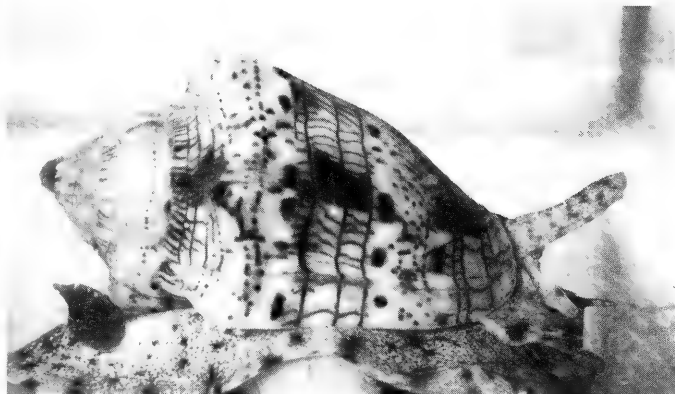


## SHELLING STORY: FINDING CARIBBEAN VOLUTES

by Peggy Williams

My first visit to Volute Country was to Roatan, Honduras, in 1976. I had no idea what was there or how to find it, and I found no volutes. On my second visit to the area I was given a volute, *Voluta demarcoi* Olsson, 1965 by a fisherman, but being strictly a self-collector at the time, I gave it to Betty Jean Pieck who was delighted.

Next I went to Bonaire with Kirk Anders. At Lac Bay he instructed the group to look in the sandy areas of the grass flat by fanning the sand and we'd find *Voluta musica* Linne, 1758. I snorkeled the whole bay, clear out to the fringing reef, fanning everywhere as I went, and found not a single volute. Back at the beach, I found Kirk having a soda and a rest. "Have you found any volutes?" I asked. "Only about 40," was the reply. I asked where. Kirk put on his mask (no flippers), waded in up to his shins, said, "This looks like a good place," fanned down about four inches to bedrock, and found four volutes! It's all in knowing how, I guess! I did collect some then, and spent another happy hour learning how to fan the sand for shells. We also found *Pyramidella dolabrata* Linne, 1758, *Tonna maculosa* (Dillwyn, 1817), *Epitonium* sp. and *Persicula* spp. there.



Photos by Peggy Williams

*Voluta musica* rolling over a *Pyramidella dolabrata* — Tobago.

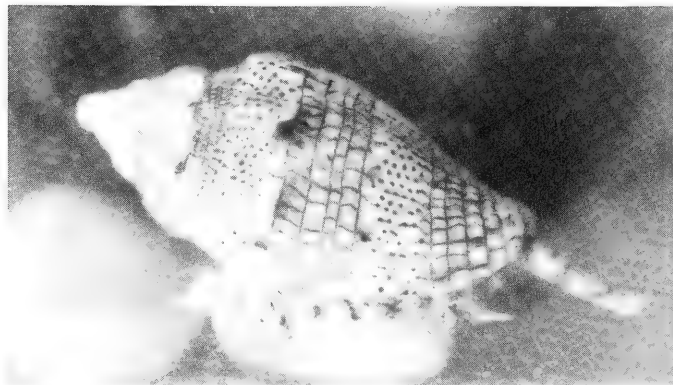
On my next trip to Honduras, this time to Cayos Cochinos, I was prepared. On a shallow dive — about ten feet — I was able to fan up several volutes which I believe are *V. demarcoi*.<sup>\*</sup> My partner and I also found them at depths of 40 and 50 feet, again by fanning. We discovered that the shallow volutes, in black sand, were gray in color, while the same species collected on coral reefs in white sand were pink to salmon.

One of the main goals for Charlotte Lloyd and me on our trip to Tobago was to find *Voluta musica*. We had been told of hundreds of volutes there for the taking, especially at night and by scuba diving. Unfortunately the dive shop at our end of the island was closed for the holidays so we didn't get to dive much.

The first night there we entered the water at a likely-looking spot and searched for about an hour. Charlotte's son Brian found one volute — and we found nothing else either! On the second night he again found one volute, and he also found one on a dive we made at 15 feet on the far end of the island of Tobago.

Getting anxious, since we had little success even when following directions from several natives and my friend at home, we hired "Mullet" to guide us one night to some volutes. Mullet was recommended by the clerk at the (semi-closed) dive shop. One night we drove to the area where his boat is moored and asked a fisherman

there how to find him. Following complicated directions, we found Mullet's home on a side dirt street, but he wasn't home. We had been told to be careful with the neighbors, since he lived near his cousin with whom he didn't get along; however, the neighbor was friendly and promised to tell Mullet to find us. As I turned the car



*Voluta sunderlandi* Petuch, 1987 — Cayos Cochinos, Honduras.

to head back, Charlotte yelled: a four inch land snail in the middle of the road! (We'd been looking for these snails, but that's another story.) The neighbor lady, though bewildered that we should want such things as dead snails, helped us find a few more, and we returned to our hotel.

Later that evening the manageress of our hotel came to tell us that Mullet was here. He proved to be a delightful fellow, in prime physical condition, and he really did know how to find volutes. We made arrangements for him to take us out one evening for a night snorkel and the following day to find the *Chicoreus brevifrons* (Lamarck, 1822) we were sure were on mangrove roots, though we'd looked for them there without success.

At the appointed time we drove to where Mullet's boat was anchored. We had to use our lights to find his boat, but as we moved out onto the water the full moon rose and we could see nearly as well as in the daytime. Starting in a mangrove-lined bay, we each found a volute or two in dark sand among turtle grass. Then we moved to clean white sand between shore and the outer reef.

As I explored trails (*Bulla striata*, Bruguière, 1972) and swam slowly, Mullet brought me two hands full of volutes. I found one myself, then he brought me another handful! Finally, in frustration, I made him swim next to me and show me when he found them. They were everywhere, crawling on the open white sand, probably hunting the bubble shells. Their pinkish shells and mottled bodies looked ghostly in the moonlight, but when I shone the light on them, the fully extended foot, proboscis and eyestalks were breathtakingly beautiful. I just watched for a while, then continued to collect.

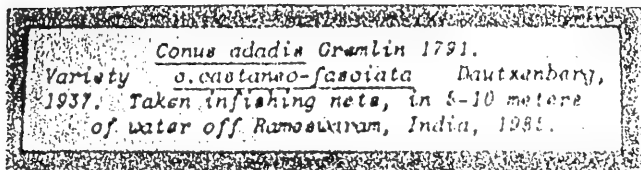
We stayed in the water about two hours in all. We also found several *Pyramidella dolabrata* — four in one clump, lots of bubbles and a few olives. After we left Mullet and returned to clean shells, we counted 65 we had found in that white sand in an hour! We chose the best and went back that same night to release the flawed shells in another sandy area. The shells from the mangrove bay were gray, while the sand-dwellers were pinkish.

The next day, snorkeling a similar area off Mullet's boat, I turned a rock to find a volute crawling away. I fanned the area and found two more, including a yellow one.

<sup>\*</sup>These now go under the name of *Voluta sunderlandi* Petuch, 1987.

A couple of days later we shelled a rocky tidepool for chitons. We had met a fisherman, Louis, who was quite taken with us and offered to help us find "cockroaches," as they call the large chiton species locally. As we turned rocks he brought us a lovely volute, and we were able to find several more among the black rocks. I explained to him that they are called "Music Volutes" because of the markings on the shell, and that we were excited to find them because, although we have many of the same shells in Florida as in Tobago, we don't have these so they are valuable to us.

The tide pool specimens, coming from the Atlantic side of the island, had lower knobs on the shoulders and were colored differently than those we'd found in the Caribbean sand, so we really came home with three or four variations of the same species.



## WE HAVE MET THE GREMLIN, AND IT IS US!

by Walter Sage

By now we should all be sensitized to the fact that when errors appear in our work that we can't explain and/or don't wish to admit to, we blame those errors on the Gremlin. It was my experience in January, 1986 to observe the workings of the Gremlin and to capture the evidence of its existence on film.



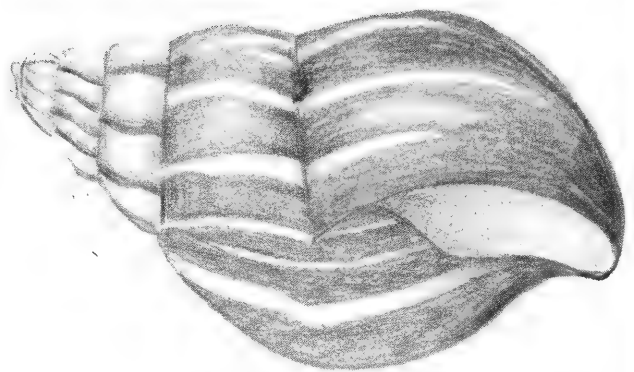
I was visiting friends who belong to the Astronaut Trail Shell Club, Melbourne, Florida, during the time of that club's annual shell show that year. While attending the shell show, I was asked by Al Bergman, whose extensive and very fine cone collection has been entered in many shows, to critique his exhibit. It was then that I noticed the two cones shown in the photo. They happened to be specimens of *Conus amadis* Gmelin, 1791, a species commonly taken off India and Sri Lanka. But these were far

from the ordinarily available *C. amadis*. they were malformed specimens, one with an abnormally extended spire, the other with a centrally compressed lip.

But what especially attracted my attention was the label that accompanied the specimens — here was real evidence that our Gremlin actually exists! Note that the label states "*Conus adadis* Gremlin 1791." Not only has our Gremlin had a hand in distorting two otherwise nice cone shells, it misspelled the name of the species, made a single underlining of both genus and species names, used italics in addition to underlining, and omitted the comma between author and date. AND it signed its work, as well!" We realized that these labels had to have been prepared only shortly before the deadline for the show, and understood how close we had come to actually capturing the elusive Gremlin itself on film!!

The moral of the story? Be sure to take all the time necessary to prepare your labels as accurately as possible — if you don't, **the Gremlin's gonna git ya!**

My thanks to Al Bergman for sharing this situation and to Bill Boger for his skill with the camera. Without them, we would never have been able to share this tale with you.



## ACHATINA CALAMITY

by Olive Peel

I discovered that the land snail, *Achatina immaculata*, lives in a garden where I go to sing every Friday evening. So on every Friday I look around to see if I can find a nice big one, but alas, they hide away.

Then one evening, after a "danger-humidity-day," I went along and lo and behold, all over the lawn, *Achatina immaculata* were lying, some full of eggs, some with heaps of yellow eggs lying next to them, all the snails either dead or dying. It was a tragic scene, I thought, almost like a mass suicide. I picked up about fifty, and what seemed strange to me was the fact that they were all lying out in the boiling hot sun. Maybe they were hoping to find a cool spot.

When I arrived home, I put them in plastic bags in the microwave oven for half a minute, and then shook them out. What magnificent hues of purple and blue. Since then, I see lots of them crawling around that garden, but enough is enough! I wonder if they are looking for the other members of their families!

Olive Peel is a COA member from Durban, South Africa. Besides singing and collecting shells, she enjoys research and writing, especially on subjects connected with the ocean.

## NAPLES SHELL CLUB SURVIVED DEMISE RUMOR

by Don Dan

Rumors flew thick this Spring that the Naples Shell Club in Florida has been dissolved due to lack of people willing to assume leadership. A few members apparently refused to let this happen. Their efforts appear to be successful. Latest words from Bea Sweet, one of the ardent supporters of the club, indicates that James Erler has been made president of the club and their annual shell show again will be held in 1988. The show is set for January 15-17 at the Naples Depot, a historic building renovated by the City. The move to a new building should bring a positive element to this show. Two sets of very respected judges have agreed to judge this show. R. Tucker Abbott and Bob Wagner will judge the scientific division and Cecilia Abbott and Fran Wagner will judge the artistic division.

The date Naples has selected makes it the first show of the Winter season. Thus some of the new exhibits may be on view for the first time at this show, and dealers may be showing their new stock first at Naples.

The Naples Shell Club meets every 3rd Thursday of the month, October through May, at the Big Cypress Nature Center. Visitors are welcome. Inquiries about the club should be made to Naples Shell Club, P.O. Box 1991, Naples, FL 33939. Let us all extend our best wishes for a club which has just gotten a second wind.

## SHELLS AND SHOWS

by John Landin

*(The following article, by a well known collector and exhibitor, broaches a provocative subject, one that is likely to meet with a bit of resistance here and there. His proposal is, however, sensible, well thought out and timely. There is a real need for some attention to the subject. We hope you read it in its entirety if you have any interest at all in exhibiting, and that you will give it the careful thought it deserves. Mr. Landin makes his proposal in hopes that it can be a starting point for formulation of some sort of rational, equitable guidelines that will be acceptable to all.*

*(Mr. Landin simultaneously submitted the original draft of this letter to Hawaiian Shell News and American Conchologist, with the intention of reaching as wide an audience as possible. An edited version appeared in the August, 1987 Hawaiian Shell News. We print a revision shepherded by members of the COA Editorial Board. This article, it must be remembered, is offered as a forum for discussion.*

*(Following Mr. Landin's article, Donald Dan, COA Trophy Chairman and well known shell dealer, comments on the proposal. We hope that you will add your ideas to his, and send them on to Mr. Landin.)*

The collecting and preserving of molluscan armor is a fascinating hobby. Each year, U.S. and foreign shell clubs sponsor many shell shows where people flock to observe the beauty and intricacy of these products of a group of animals whose ancestors arose prior to the Paleozoic Era more than 600 million years ago. My initial impression of the shows was that their primary purpose was to educate and entertain the public and promote an increased interest in the collecting, preserving and studying of shells. I thought of each show as a short-term museum dedicated to the people. It did not take me long to discover that shell shows are hotbeds of competition, where the main thrust is the accumulation of ribbons and other awards. This being a competitive society where, as Vince Lombardi said, "Winning is everything," I'll go along with the program, so long as we don't lose sight of the concept that the shows should entertain and educate the public while giving collectors the opportunity of observing and studying shells they may never have seen before.

All shell shows have rules that the exhibitors must abide by. Some have quite a few rules, while others have hardly any. Some are specific, while others are quite vague. This lack of uniformity causes confusion among would-be exhibitors and creates impediments to the good, educational displays a shell show should provide. As long as these shows are competitive in nature, and I haven't found one that wasn't, I believe that they could be more effective if they were all governed by a uniform code of rules. If such a code was implemented, exhibitors could move from one show to another without any particular difficulties or surprises. Competitive sports aren't played without uniform rules that apply throughout the country. By the same token it appears to me that there is a need for an all-encompassing set of standards that would apply uniformly to all the shell shows held in the United States.

Thus, after a great deal of deliberation, I set forth below a series of tentative standards for shell shows. I have gleaned these, for the most part, from various U.S. shell show entry forms ranging from Long Island to Crown Point to Miami and in between. The exceptions are the rules pertaining to judges and judging. This area has not been addressed in any entry forms I've seen. All the articles are directed toward the scientific divisions of the shows, and are not

intended to apply to the artistic portions, although some of them would probably be applicable.

1) There shall be a total of three judges per each shell show. One shall be a shell collector, one shall be a shell dealer and one shall be a professional malacologist or conchologist. Each judge shall be required to have at least ten years experience in his field or combination of fields.

2) Each judge shall receive a standardized, adequate fee for judging a show and shall be fully compensated for all out-of-pocket expenses incurred for travel, room and board in connection with his duties as a judge.

3) No judge shall be an exhibitor in a show he is judging, either directly or indirectly, nor a member of the club sponsoring the show, nor be closely associated with any exhibitor in the show.

4) Judges shall not be entertained by or be guests of any member of the group sponsoring a show prior to the completion of judging, except in the case of host club-sponsored functions.

5) During the period of judging, the three judges shall be accompanied by two members of the sponsoring group who shall serve as clerks. Neither of the clerks is to be an exhibitor in the show being judged.

6) All decisions of the judges shall be final and not subject to appeal.

7) The shell show sponsor shall provide its own around-the-clock bonded security personnel for the protection of all exhibits displayed. They are not to depend upon any security services provided by a mall or other agency that is supplying space for the show.

8) Each exhibitor shall furnish a certificate of insurance indicating that his display is adequately covered against loss by theft, fire, vandalism, or other events that might result in loss of or damage to their exhibits. In lieu of this, the exhibitor shall sign a waiver absolving the sponsor of the show of any losses incurred.

9) All exhibits shall be housed in glass- or acrylic- covered cases that are not over 30 inches deep including the upright background, which shall be not over 30 inches high above the bottom of the case. The reverse side of any upright background must present a pleasing appearance so as not to detract from other displays. The length of any exhibit shall not be restricted, but an extensive display may have to be housed on more than one run of supports.

10) The only electrical devices permitted for exhibitors shall be battery operated.

11) An exhibitor may enter as many categories as he wishes, but must have a separate display for each category entered.

12) Dealers shall be permitted to enter displays and shall be eligible for awards on the same basis as any other exhibitor. (I bought many of my shells from dealers worldwide. At one time or another I have dealt with almost all of them, from Singapore to Santa Barbara to the Culion Leper Colony in the Philippines. All of the dealers whom I know personally — and that includes most U.S. and many foreign dealers — have been knowledgeable, helpful and pleasant to deal with. Some shows do not permit dealers for one reason or another and I, for one, think this is unfortunate; a sense of camaraderie seems to be missing when they are not present. They help make the event more interesting and more fun. It is my contention that if a dealer has enough initiative to put together a display, among all the other things he has to do, he should be allowed to compete. A bonafide dealer will not spend time or money accumulating the best shells for an exhibit. He will be selling them to the



customers. A dealer has nothing to gain by reserving shells for himself and antagonizing potential buyers.)

13) All shells displayed competitively shall be the personal property of the person exhibiting them. Any exhibitor utilizing borrowed specimens in his exhibit shall be disqualified.

14) Specimen shells that are displayed may have been obtained in any manner, save borrowing, except entries in the self-collected category. Shells in this category must have been collected by the person displaying them.

15) Any person competing for the self-collected shell of the show must mark the self collected shells in his display with a red star or other uniformly recognized device, unless all the shells in a particular exhibit are self-collected and indicated as such, or a shell is displayed singly and labeled accordingly.

16) Any shell on competitive display in the show is eligible for the shell of the show award.

17) Exhibits must remain in place until the specified date and hour of removal, but may be excused by the show committee in the case of unexpected emergencies. Any exhibitor not abiding by this rule shall not be permitted to display at the sponsor's next show.

18) The show committee reserves the right to refuse entries and to place an exhibit in its proper category.

19) All scientific judging shall be done on the basis of the following six categories. Each of the categories is to be graded by each of the judges in the range of 1 to 10 with a total of 180 being a perfect score.

- a) Arrangement and neatness of the exhibit.
- b) Educational and/or scientific value.
- c) Accuracy of the labeling.
- d) Quality and value of the shells displayed.
- e) Amount of work required to put the exhibit together.
- f) Originality of the presentation.

20) All shell show nomenclature and labeling of specimens shall be in accordance with the article by Walter Sage published in the *COA Bulletin* of March, 1987, Volume 15:1, Page 16 and titled "Notes on Nomenclature and Labeling."

21) If an exhibit has won a first place ribbon in any category in a specific show it must be changed by at least 50% before it is eligible to compete in the same category in the same show in the future. This does not preclude the display of an unchanged, winning exhibit in another category in a subsequent same show if it is eligible for display in another category.

22) If an exhibit has won the COA Award, the DuPont Award or any other major award, it must be changed by at least 50% to be eligible for the identical award again at any shell show in the United States.

23) No sale or advertisement for sale of shells is permitted in the show area except by those leasing dealer space, or by booths sponsored by, and for the benefit of, the host club.

24) During judging, the exhibit area shall be closed to everyone except for the judges and clerks and hall maintenance crews.

25) An exhibitor's name must not be displayed on his exhibit until judging has been completed. (NOTE: FACT OF LIFE!! Because of the limited number of shell show judges available, and the fact that they judge the various shows repeatedly, year after year, and because of the limited number of exhibitors who display in the various shows year after year, it is obvious that the cases, display techniques and shells used by the exhibitors become familiar to the judges; as a consequence in a good many cases, the judges are aware of whose displays they are judging. More judges and more exhibitors would help alleviate this situation.)

26) Entry forms must be in the hands of the exhibits chairman on or before a specified date.

27) The names of the judges for a show should be included, if possible, with the entry application forms for that show.

## 28) A Proposed, Standardized Listing of Scientific Exhibit Categories:

- a) One Family — Salt Water
- b) One Genus — Salt Water
- c) One Species — Salt Water
- d) Land Shells
- e) Fresh Water Shells
- f) One Single Shell — Collected Any Manner
- g) One Single Shell — Self-Collected
- h) Miniature Shells
- i) Fossil Shells
- j) Shells From One Geographical Area
- k) General Collections
- l) Specialty Collections
- m) Sea Life Collections Other Than Shells
- n) Juvenile Collector Categories

This is a tentative listing of the minimum number of scientific categories that a shell show should have. Any number of additional categories can be added at the discretion of the shell show committee. All categories should be identified clearly and described fully so as to preclude any exhibitor being confused as to what category he is entering.

30) A reasonable amount of time should be allotted by a show sponsor for exhibitors to set up and remove their exhibits.

31) New rules shall go into effect two years after adoption.

This listing of standards is but a carefully considered suggestion which I hope can serve as a basis for development of a National Shell Show Code. Perhaps a National Shell Show Committee can be set up as a branch of the COA to study the matter. I believe that the COA could be influential in promoting and encouraging this concept and could exercise control through proper administration of its awards program.

I'm sure plenty of people have opinions on my proposal, if not better ideas, so let's have some input. Write or call me: P.O. Box 515, Palos Park, IL 60464. Telephone (312) 448-8479.

## TO PROMOTE "COA SHELL SHOW GUIDELINES"

by Don Dan

I'm very encouraged that John Landin has spearheaded this noble effort to promote a uniformity of interpretation of shell show rules. Among others, R. Tucker Abbott and I have agreed to support him in every way possible. We'd like to hear from a wide range of collectors and judges as to their thoughts in general and specific. My initial reaction to John's draft is spelled out below:

First off, I want to suggest that we call this effort "The COA Shell Show Guidelines." I seem to think that COA is the most appropriate organization to promote these guidelines, even though, at this point, COA has not officially accepted the responsibility.

An uniform interpretation of shell show rules appears to be long overdue, as evidenced by the recent spontaneous expressions of concern by both show judges and exhibitors. In this rush of enthusiasm, however, let's be cautioned that a rigid set of rules could be very stifling in some specific situations, and even be counter-productive. A negative aspect, of course, is the last thing we want. Wouldn't it be a bore if, in the future, as a result of a rigid set of rules, all the shell shows would be look-alikes? Is it not that we want a set of guidelines that both are helpful to show sponsors, judges and exhibitors, and would promote a growing series of vibrant and innovative shell shows? In other words, a set of guidelines that allow for refreshing differences?

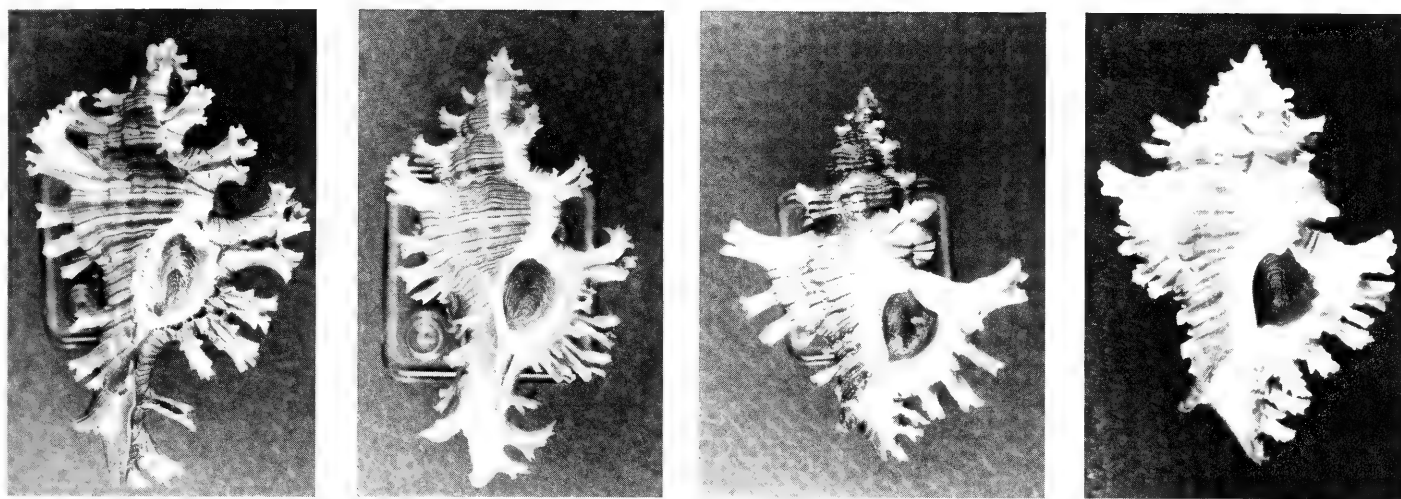
I therefore recommend that we write flexible guidelines and not rigid rules. We should even allow for deviation from the guidelines at a shell club's discretion. As an example, shell clubs may indicate on their shell show rules that their rules conform to the COA Shell

Show Guidelines, with notation as to specific areas of deviation, if any.

As to specific Guidelines: Being a shell dealer, I'd like to focus on areas I am most familiar with, including John's selection criteria for shell show judges. I am not in favor of dealers being judges because of obvious difficulties with conflict of interest. It is no service to dealers to make them subject, in their judges' decisions, to pressures from customer-exhibitors. Nor will even the most scrupulous of judging appear unbiased if the dealer who is judging sold the winner his shells. John has made several efforts to minimize conflict of interest elsewhere. This area, as well, deserves attention.

As to whether dealers should be allowed to exhibit in a competitive show, unfortunately the prevailing thinking seems to be that dealers have unusual advantages in obtaining specimens. This precept is not uniformly true, especially if we are talking about self-collected shells. Personally, however, I would not exhibit in a shell show in competition with my customers for obvious reasons. In a few instances when I was called upon to lend support to a show by exhibiting, I put myself in a non-competitive category.

Finally, we should realize that whatever we do in this endeavor will probably not be perfect, but even if we succeed halfway, I think it would be worth all the support we can give. So let's hear from you!



*C. insularum* from the collection of Gene Everson. All others from the collection of Roberta Cranmer.

Photos by Bill Doolin

Left to right — *Chicoreus palmarosae*, *C. saulii*, *C. steeriae* and *C. insularum*.

## ROSE BRANCH AND FRIENDS

by Lynn Scheu

Even those few spartan individuals who don't like murex recognize the rococo glory of the Rose Branch Murex, *Chicoreus palmarosae* (Lamarck, 1822). In a really superb specimen, the elegantly proportioned, spirally corded shell is complemented by long, extravagantly branched pink, orchid or lavender fronds. It's a shell to make a collector out of anyone.

But the new murex collector soon learns that even the Rose Branch has its "mimics." Nothing is simple in the world of murex. *Chicoreus saulii* (Sowerby, 1841), *C. steeriae* (Reeve, 1845) and *C. insularum* (Pilsbry, 1921) may all have the brown and tan-to-pink spirally corded shell and those recurved frondose varices tipped in shades of pink-to-lavender. "So," our puzzled novice wonders, "should I start collecting bivalves?"

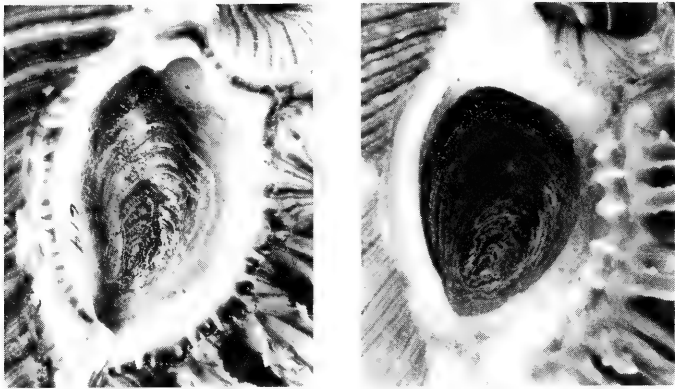
Not necessary at all, Dear Novice. At the risk of blundering into the same quicksand that has claimed other attempts to clarify this group, we'll set you straight:

The Rose Branch Murex belongs to the genus (or subgenus, depending upon whose book you open) *Chicoreus*. It's a large group containing those murex with a fattish body whorl and a rather high spire and having three varices per whorl composed of various forms of fronds and spines. A confusing group, all in all — differentiation among the *Chicoreus* often depends upon the angle of attachment of a frond or the relative length of a certain spine. Not so with our little group.

*Chicoreus palmarosae* occurs from Ceylon and Thailand up

through the Philippines to Okinawa and south to Northern Australia. The beautiful variety with lavender fronds appears to be restricted to the Indian Ocean — Ceylon and Thailand. Specimens from the Philippines and other areas have more mundane brown-tipped spines. But identification of the species should focus on the aperture. The adherent columellar lip is the real distinctive feature of *C. palmarosae* — note its brown-stained edge and row of tiny white denticles. None of our other three species has this feature. The Rose Branch also has a broad, shallow posterior canal, bounded by a heavy knob on each side. And it is helpful to note that the area between the main fronds on the varices is bare.

Compare these features to *Chicoreus saulii*. Saul's Murex appears to be centered in the Philippines, with a rare excursion north to the Ryukyus and south to New Guinea. It generally seems to be a bit more elongate and delicate in sculpture and a bit lighter and less massive. Saul's Murex also may lack the lavender on the fronds. But these are differences of degree. To interpret these differences, one must have both shells in hand. We shall need a better guide. And again, the aperture is the key. *C. saulii*'s briefly detached, barely erect columellar lip is smooth, or has a few tiny, inconspicuous beads at either end, and it is edged in pink, not brown. The anal canal is deep and U-shaped, not broad and shallow, and has several small beads on each side. And that area between the varical spines on Saul's Murex is filled in with tiny spines pointing toward the aperture.



Apertural views: left — *C. palmarosae*; right — *C. saulii*

*Chicoreus steeriae* comes only from the Marquesas Islands in French Polynesia. Probably a first cousin to *C. palmarosae* and *C. saulii*, it shares the general coloration and those lavender-tipped fronds. But this species is widely separated geographically from its relatives, and exhibits expected differences. Its columellar lip is adherent like *palmarosae*, rose-edged like *saulii*. And it has the small intermediate varical spines of *saulii*. The anal sulcus is deep and inverted v-shaped, bounded by a heavy ridge on the columellar side. But comparing *C. steeriae* to Saul's and the Rose Branch Murex really need go only as far as general shape. *C. steeriae* looks stunted, dwarfed, with a shortened siphonal canal, shorter spire, and more massive body. Its sculpture is coarser as well, with a heavy knob between varices. And the varices in the spire frequently lack varical fronds.\*

*Chicoreus insularum*, Hawaii's beloved and jealously guarded

endemic, and the last of the group, is perhaps most closely related to *steeriae*. Both inhabit the central Pacific, and are widely separated geographically from *saulii* and *palmarosae*, perhaps because of some prehistoric extinction of intervening forms. Both *C. insularum* and *C. steeriae* are stockier than the more westerly species. And both have that heavy intervarical knob. *Insularum* seems to have a slightly longer siphonal canal, and somewhat shorter spines. Although it often has the brown/lavender coloration, *insularum* can be much paler and lack the lavender fronds altogether. But again these are differences of degree, and we must look to the aperture to decisively separate the two. *C. insularum* has an erect and detached columellar lip which is entirely white, or, at most, yellowish, quite unlike *C. steeriae*'s adherent rose-hued lip. And it lacks the secondary, ventral pointing spines on the varix.

\**Chicoreus steeriae* has often been confused with *C. maurus*. In recent years, several authorities have placed the name *steeriae* in synonymy with *C. maurus* to designate the *Chicoreus* from the Marquesas. But the original illustration of *Murex maurus* Broderip, 1833 (in Sowerby, 1834-41, The Conchological Illustrations) shows a shell most unlike the Marquesas shell, closer to *Chicoreus torrefactus*. Broderip did designate the Marquesas as the type locality for *C. maurus*, but the name has for some time been associated with a *torrefactus*-like shell from South Africa, which has been recently reclassified as *Chicoreus kilburni* Houart & Pain, 1982.

References consulted:

- Fair, Ruth, 1976. The Murex Book, pp. 51, 57-8, 65, 75, 78; Pl. 6, 8.  
 Freeman, David, 1986. *Chicoreus maurus* (Broderip, 1833), The Strandloper, May/June, 1986, pp. 4-5.  
 Freeman, David, 1986. Unraveling the *Murex maurus* mystery, Hawaiian Shell News, Dec., 1986, p. 9. (An edited reprint of the above.)  
 Hinton, Alan, 1972. Shells of New Guinea and the Central Indo-Pacific, p. 34; pl. 17.  
 Houart, Roland, 1987. Hawaiian Shell News, March, 1987, p. 11.  
 Kay, E. Alison, 1979. Hawaiian Marine Shells, pp. 236-7.  
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 Radwin, George and Anthony D'Attilio, 1976. Murex Shells of the World, pp. 38-40, 42; pl. 5.  
 Salvat, Bernard and Claude Rives, 1975. Coquillages de Polynesie, pp. 144, 311.  
 Springsteen, F. J. and F. M. Leobrera, Shells of the Philippines, p. 134, pl. 36.

## MITRA HEILPRINI BECOMES MITRA LINEOLATA

by Walter Sage

A letter from Richard E. Petit, current president of the American Malacological Union, draws our attention to some name changes in Florida fossils. He refers us to a short paper he recently coauthored with Druid Wilson on the correct date of publication for new species described on pages 65-127 of Heilprin's classic work, *Explorations on the West Coast of Florida*.<sup>\*</sup> Their paper convincingly demonstrates that these pages were actually published in 1886, not 1887 as commonly cited, and makes necessary several changes in the species citations used in our June issue.

The name *Mitra heilprini* Cossman, 1899, as used on the caption to the front cover and on pages 4 and 6 should be *Mitra lineolata* Heilprin, 1886. Additional changes should be made as follows: page 4 — *Vasum horridum* Heilprin, 1886; *Turbinella regina* Heilprin, 1886 [the correct genus name should be used here and on page 5, as was properly done on the cover caption]; *Subpterynotus textilis* (Gabb, 1873) [again, the correct genus name should be used, see p. 7]; and *Cypraea problematica* Heilprin, 1886; page 5 — *Fasciolaria scalarina* Heilprin, 1886; page 6 — *Scaphella floridana* (Heilprin, 1886).

Mr. Petit also makes the following point, "The editor should be requested not to publish manuscript names (see (American Conchologist) 15(2):11 where a Petuch MS name for an Ecphora is mentioned. Manuscript names also should not be used in labelling shells on displays at shows, as I have seen done.)" We thank Mr. Petit for calling these matters to our attention and encourage all our readers to send us your constructive criticism.

\*Petit, R. E. and D. Wilson. 1986. Publication dates of Heilprin's *Explorations on the west coast of Florida*. Tulane Studies in Geology and Paleontology 19(2):95, 96.



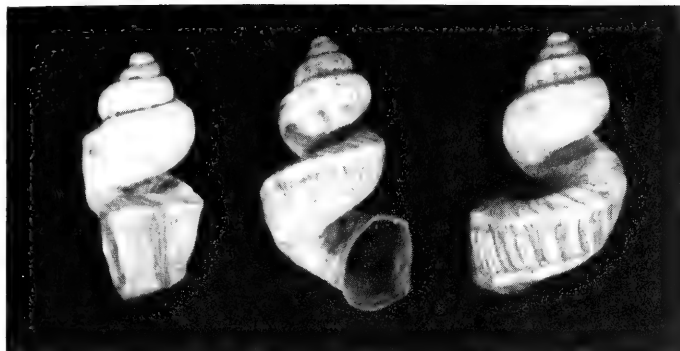
## COA TROPHY WINNER

SHELLARAMA '87 Central Florida Shell Club and Sea World of Orlando, March 13-15.

WINNERS: Carolyn and Earl Petrikin

TITLE OF DISPLAY: "King of the Bay"

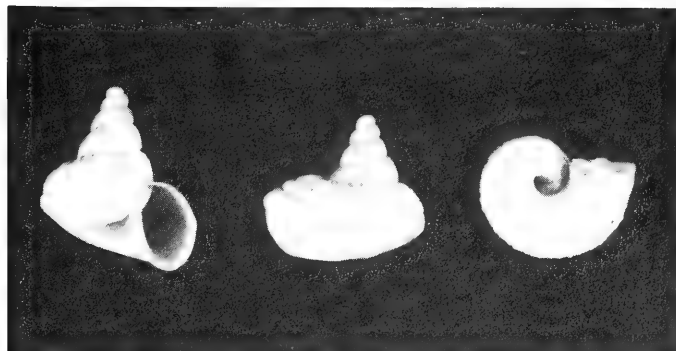
An educational entry entitled "King of the Bay," showing size, color, variations and habitat of the genus *Melongena* won the COA Trophy for Carol and Earl Petrikin. The Petrikin's exhibit was a real winner, having already won the DuPont Trophy at the Astronaut Trail Shell Show in January. The Petrikins are members of the *Suncoast Conchologists Club* of Clearwater as well as the *St. Petersburg Shell Club* and COA. Congratulations to Carol and Earl for an outstanding exhibit.



All shells from the collection of Richard Goldberg

All photos by Richard Goldberg

*Bostryx solutus* (Troschel, 1847) El Infiernillo, Rio Rimac, 90km. northeast of Lima, at 3340m. Leg. W. Weyrauch. 9.5mm.



*B. metagyra* — Huacho, Peru. Wolfgang Weyrauch. 9mm.

### Land Snails:

## UNUSUAL BULIMULIDAE FROM PERU

by Richard Goldberg

(In landforms, Peru somewhat resembles its northern neighbors — Ecuador and Colombia. It has a long, narrow, low coastal plain paralleled by imposing mountain ranges, with a large forested lowland to the east. A major difference, however, is the cold ocean current off the coast of Peru. The westerly air masses that cross that current before they reach land bring cool air to the coast with two results: almost no rain falls on the coastal plain, making it one of the driest spots on earth, and the climate is temperate all year.

The coastal plain is irrigated by rivers running down from the Andes. Two principal ranges of the Andes — the western and the eastern — extend the length of Peru. The western range splits into two separate ranges in the south, known as the Black Range (a forbidding line of dark peaks) and the snow-capped White Range, whose principal peak, Mr. Huascaran is more than 22,000 feet.

To the east the Andes descend through foothills to the tropical forests of central South America and to great rivers, including the Amazon. These forests and rivers are supported by the heavy rains that fall east of the Andes. The eastern slopes of the Andes are suitable for cultivation of a great variety of crops, especially in the open valleys, and crops such as wild rubber, vanilla and cinchona, the source of quinine, are harvested from the tropical forests there.)

No place on earth does the terrestrial family Bulimulidae attain such unusually varied shapes and forms as in Peru. A few genera — the tropical New World *Drymaeus*, for instance — contain colorful and extremely variable species. Other Bulimulid genera, while they are less colorful, indeed, almost unicolor or chalky white, exhibit unique, incredibly shaped shells. The genera *Bostryx* Troschel, 1847 and *Scutalus* Albers, 1850 are in this latter category.

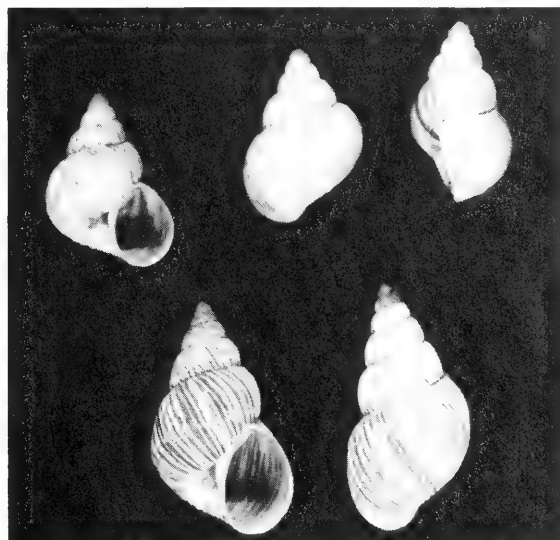
*Bostryx* contains the most diversely shaped species of all Bulimulids. *Bostryx* are found in South America from Chile north through Peru and Ecuador, Bolivia, northern Argentina, and possibly Venezuela. After doing anatomical studies on the animals of many *Bostryx* species, Bruere in 1979 reduced 233 associated groups or subgenera to synonyms of the genus *Bostryx* (sensu lato). It is no wonder that all of these subgenera were erected, when one considers the great morphologic diversity within the genus. And the Peruvian *Bostryx* are the most fascinating of all.

The vermiform *Bostryx solutus* (Troschel, 1847) has been reported by Wolfgang Weyrauch from central Peru, around Rio Rimac, northeast of Lima, at 3300+ meters above sea level. Once placed in the subgenus *Bostryx* sensu stricto, this small species averages around 9 to 10 mm. It has six whorls; the first four attached, the latter two completely free, giving the shell its unusual shape. *B.*

*solutus* is said to be associated with limestone rock faces, but no definitive ecological data is available.

*Bostryx metagyra* Pilsbry & Olsson, 1949, a white shell, has non-vermiform whorls. The final whorl, instead of descending, dilates laterally, revolving in a flat plane, and gives the shell a very squat, almost triangular shape. This most unusual aspect to the shell's morphology, i.e. the last whorl changing in shape from a typical Bulimulid coil to a widely expanded one, is unknown in other Peruvian Bulimulidae. *Bostryx metagyra*, averaging around 8 mm., has been reported from the lomas (hills) near Huacho, north of Lima.

*Bostryx scalariformis* (Broderip, in Broderip & Sowerby, 1832) is so variable that a number of subspecies have been described. Its axial riblets vary from being widely to finely and evenly spaced according to where they were collected, although some variability within populations does exist. Some forms of *B. scalariformis*,

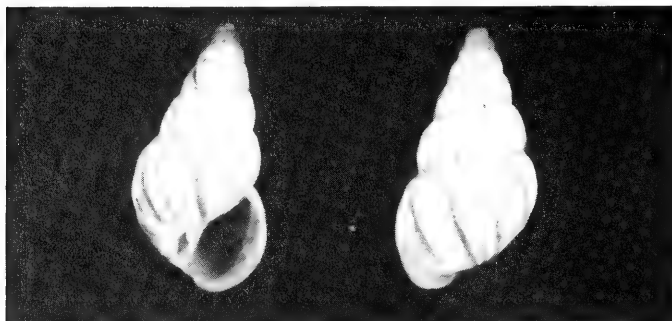


*B. scalariformis* — (top row) Weyrauch distributed a number of species to collectors and museums with manuscript names on the data tags, while designating type material. This is one such form. These specimens were designated by Weyrauch as paratypes, but they have no validity. They are from Lachay, near Chancay, north of Lima at 300m. Leg. W. Weyrauch. 10mm. (bottom row) Another of Weyrauch's manuscript forms, these were also designated as paratypes. These are from Atocongo, near Lima at 250m. Leg. W. Weyrauch. 14mm.



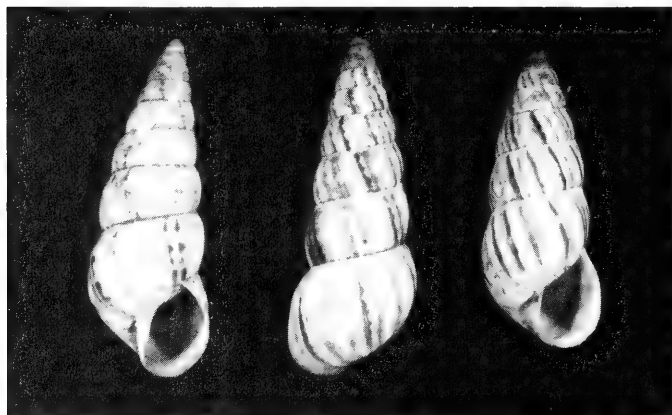
almost mimic some species of *Epitonium*. Ranging from 10 to about 20 mm., it is found in central Peru, near Lima, at 200 to 300 meters.

A similar species, *Bostryx vilchezi* Weyrauch, 1960, is a small (7-8 mm.) species with approximately 15 to 17 prominent riblets. Unlike the chalky white-to-tan *B. scalariformis*, *B. vilchezi* is brownish with white riblets, and is somewhat shiny. It is only found in northern Peru around Cutervo, at approximately 2000 meters.



*B. vilchezi* — Paratypes from Socota, 20km. northeast of Cutervo at 1950m. Leg. W. Weyrauch. 8mm.

The genus *Bostryx* also has species with turreted spires. *B. elatus* (Philippi, 1869) is one of many similar elongate, turreted species, but seems closest to the typical Bulimulid shape. Also rather small, averaging under 20 mm., it is recorded from central and southern Peru at approximately 3000 feet. It is found arboreally, associated with limestone. *B. elatus* is ornamented with brown streaks, often in pairs, over a dirty white base color.



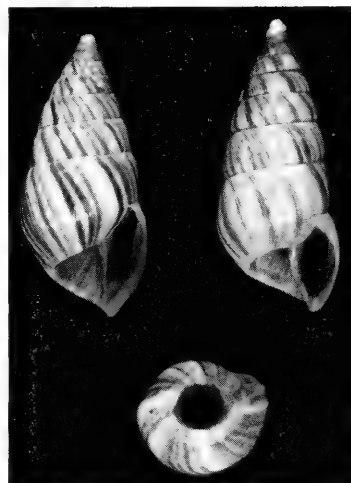
*B. elatus* — Mejorada, Rio Mantaro, at 2900m. Leg. W. Weyrauch. 17-17mm.

Unlike *B. elatus*, *Bostryx turrinus* (Broderip, in Broderip & Sowerby, 1832) is banded, and in shape is very like some freshwater Melanids. Restricted to the mountains near Trujillo, central coastal Peru at approximately 1500 meters, it is similar in size to *B. elatus*. Quite unlike *B. elatus* and many other *Bostryx* species, its umbilicus is reduced to a mere chink-like perforation.

At the other end of the spectrum is *Bostryx perforatus* (Haas, 1951), appropriately named for its wide, deep umbilicus, one of the most excavated of the group. Running the entire length of the shell up to the spire, it looks like a drill hole. Depending upon where it is found, it can be either chalky white or a brownish or purplish streaked pattern. Sculptured with fine axial striations, it averages around 20 mm. It was originally described as a *Bulimulus* in the subgenus *Ataxus*, a subgenus erected for species with similarly deep



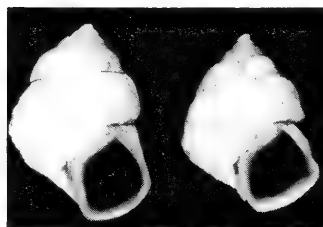
(Left) *B. turrinus* — coastal Samne, near Trujillo, Libertad Dept. at 1500m. Leg. W. Weyrauch. 18mm.



(Right) *B. perforatus* — Nino Bamba, Rio Pampas, affluent of Rio Apurimac at 1900 m. Leg. W. Weyrauch. This is the type locality and these are from the original series that Haas described. 17-18mm.

umbilici. *B. perforatus* is found in Southern Peru, around Ayachucho and the Rio Pampas, at approximately 2000 meters. *B. infundibulum* (Pfeiffer, 1853) is a very closely related species, but is generally smaller and narrower, with a funnel-shaped umbilicus which is not as wide and deep as *B. perforatus*. *B. perforatus* and its associated species are reported to live on grass among limestone rocks.

*Bostryx reentsi* (Philippi, 1851) is relatively large (25-31mm), but always cretaceous-like, even in living specimens. What it lacks in exterior color, it makes up in shape and sculpture. The surface is transversely wrinkled, giving the shell a shrivelled or dented appearance. In contrast to the dull exterior, the aperture is deep rose to purple in living specimens, pinkish in dead ones. Its type locality is a sandy hill, above the limits of vegetation, near Chala, southern coastal Peru, at approximately 150 meters. Other records include Pucallpa in central and eastern Peru near the Brazil border. This species seems to have a wider range than most other *Bostryx*.



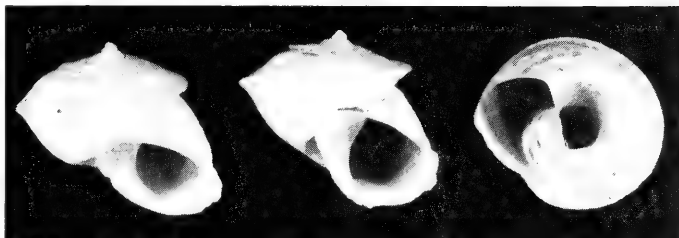
*B. reentsi* — (left) From type locality, Chala, Leg. W. Weyrauch. (Right) Pucallpa. Note variability among individual populations. 24-28mm.

A shell described as *Helix reentsi* Philippi in 1855 is very unbulimulid-like, subsequently redescribed as *Bostryx eremothauma* (Pilsbry, 1896) when it was found to belong in the Bulimulidae. The name "*reentsi*" was obviously preoccupied by the previous species. It is not surprising that Philippi was misled into believing this species to be a *Helix* (In the early years of malacology all helical-shaped land shells were called as *Helix*). Pilsbry placed it in the subgenus *Platybostryx* Pilsbry, 1896. The nominate form is



*B. eremothauma* — another of Weyrauch's unpublished species, these specimens were also designated as paratypes. Leg. W. Weyrauch. 11-12.5mm.

found in Altacama Province, Chile, but two specimens before me, Weyrauch distinguished as different, although he never published the subspecific name he assigned to them. He collected them at Tambo Viso, Rio Rimac, southern Peru at 2700 meters. The Peruvian specimens have much finer and less prominent sculpture than the Chilean ones. They measure 11 and 12.5mm, a bit larger than most Chilean specimens. I have encountered no other records for this species outside of Chile. The range of *B. eremothauma* can be extended over 600 miles north into Peru.



*B. weyrauchi* — Ninabamba, Rio Pampas, affluent of Rio Apurimac. Leg. W. Weyrauch. This is the type locality and these are from the original series that Pilsbry described. The specimen on the right is immature, but shows the bands sometimes seen in this species. 17-19mm.

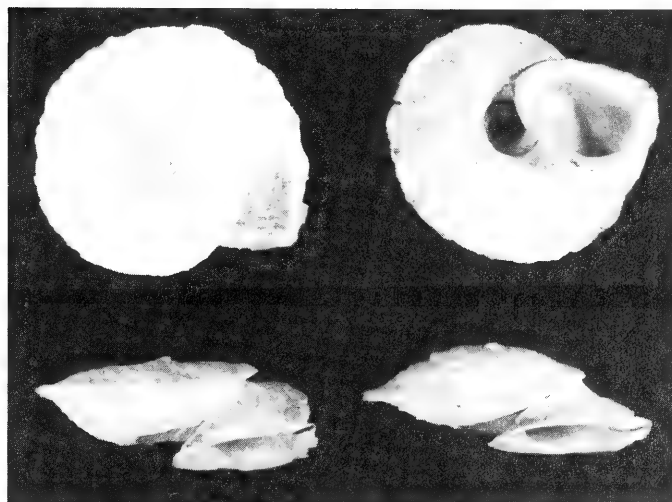
The only other species described in the subgenus *Platybostryx* is *Bostryx weyrauchi* Pilsbry, 1944, a larger species (17-19mm) and confined to southern Peru around Ayacucho at approximately 2000 meters. Its contour and sculpture immediately differentiate the two species. *B. weyrauchi* varies considerably in shape and height of spire. Some specimens have pale brown spiral bands above and below the peripheral keel. The interior of the aperture is sometimes brown-tinted or white. It is more closely related in shape to *Bostryx reentsi* than *B. eremothauma* with which Pilsbry originally grouped it.

Based on anatomical studies, Breure (1978) has reduced the genus *Xenothauma* Fulton, 1896 to a junior subjective synonym of *Scutalus* (*Scutalus*) Albers, 1850. Three species were described in *Xenothauma*, all representing some of the most bizarre and unbulimulid-like species from Peru. *Scutalus* (*Scutalus*) *baroni* (Fulton, 1896) is a dull, chalky species, helical, sharply keeled, and with a wide deep umbilicus. Restricted to the Tembladera region of northern Peru, the type locality is Rio Yonan, affluent of Rio Jequetepeque. Tembladera is about 2000 feet. There is no other species like it in South America, and it is amazingly similar to *Geomitra delphinula*, a fossil member of the family Helicidae from Madeira. Its average size is around 25mm in diameter, but it varies considerably in spire height. Some species have an almost flat spire, while others are quite elevated.

*Scutalus* (*Scutalus*) *nobilis* (Pilsbry & Olsson, 1949 also has a dull white, calcareous appearance, and a rather large, deep umbilicus partially covered by the basal portion of the broadly expanded peristome. Its main difference from *S. (S.) baroni* is the much

higher spire and smoother sculpture. It is found in the same locality as *S. baroni*, and, like *S. baroni*, attached to the bare limestone cliff faces of this area.

This represents just a small sample of the fascinating variety of Bulimulids from Peru. With further exploration of the remote and inaccessible areas of Peru, many new and equally unusual species are bound to come to light.



*Scutalus* (*Scutalus*) *baroni* — Type locality Rio Yonan at 400m. Leg. W. Weyrauch. Note variability of spire height in one population. 26-28mm.



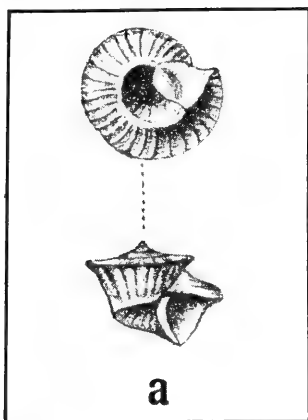
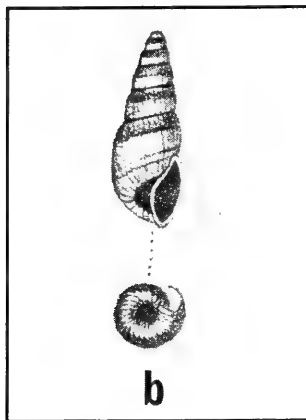
*Geomitra* (*Craspedaria*) *delphinula* (Lowe, 1831) — a fossil species in the Helicidae from the Madeira Archipelago, which has a striking resemblance to *S. baroni*. 20mm.



*S. (S.) nobilis* — Rio Yonan, between Chiclayo and Cajamarca at 500m. Leg. W. Weyrauch. Specimen has chipped lip. Very rare. 25mm.

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(a) *B. eremothauma* — Chile(b) *B. infundibulum* — Ayacucho, Peru. both illustrations are from Pilsbry (1896), *Man. Conch.* (2) 10: pl. 44.

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## A DAY'S COLLECTING IN THE FLORIDA KEYS

by Walter Sage

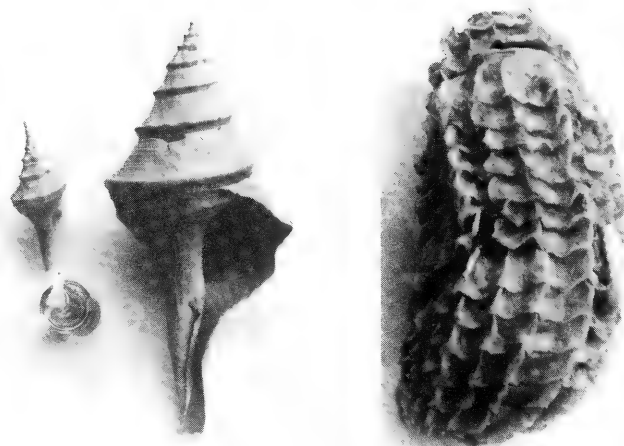
It was after a very successful meeting of the American Malacological Union in Key West this past July that I spent two days with Homer Rhode on Big Pine Key. While there we went out for a day of collecting in the Keys with Raymond Pease, his daughter Pam, and her husband Larry, who were down from South Carolina for a lobster season vacation.

The five of us put out from Key West at about 9 a.m. The weather was the best it had been for the past few days. Our first stop was about ten miles out, near Boca Grande, where we dropped anchor in about 15-18 feet of water. Homer and Ray donned scuba gear, while Larry snorkeled and I made an attempt to snorkel. I abandoned this idea due to the difficulty of using borrowed gear and my inability to see without a prescription face mask. After about an hour in the water, our companions returned with several species, among them *Cypraea cervus* Linné, 1771, *Lima scabra* (Born, 1778), *Chlamys imbricata* (Gmelin, 1791), *Chlamys sentis* (Reeve, 1853) and *Vasum muricatum* (Born, 1778). Homer and Ray remarked that they had hoped to find more species, but that many rocks appeared to have been recently turned and then replaced in their original positions.

We then headed back toward Key West and stopped about five miles out, at a place where the water was less than six feet deep. This time I had no trouble snorkeling in the waist- to neck-deep water, and really had a wonderful time just looking at all the

marine life. My only problem was forgetting to breathe when I'd see something of particular interest or beauty! I spotted several species of mollusks, the most prevalent being *Astraea tecta americana* (Gmelin, 1791), often nesting with urchins in crevices. The urchins were everywhere, as were sponges, corals and gorgeously colored fish. Among the species found here were *Charonia variegata* (Lamarck, 1822), *Vasum muricatum*, both species of *Chlamys*, *Cypraea cervus*, *Pleuroploca gigantea* (Kiener, 1840) *Strombus gigas* (Linné, 1758), a protected species in Florida (and other areas in the Caribbean), which by law cannot be collected, and some smaller mollusks. Here again Ray and Homer remarked that there were signs that other collectors had recently turned and then replaced the rocks.

This trip, my first underwater adventure in the Florida Keys, was great fun and a fitting end to a wonderful Florida visit. The combination of being out in the open, and enjoying the water, sun and breeze was near perfection. I would urge you all, even if you don't self collect, to get in the water and snorkel — there is so much beauty in nature to experience at first hand. "It doesn't get any better than this!"



Photos by Beatrice Winner

*Syrinx aruanus* — a few juveniles showing the early whorls.

Right: 10 inch *Syrinx* egg mass.

## SYRINX ARUANUS

by Beatrice Winner

The *Syrinx aruanus* Linnaeus, 1758 belongs to the family Melongenidae. Its geographical range is from northern Australia at Bunbury, W. A. to southern Queensland. The northern shells have a shouldered spire, and the shoulders are carinated, sometimes nodulose; but at the southern end of the species' range in Western Australia, the spire is low and straight-sided, the shoulders rounded.

The egg cases and juvenile shells were found in Rodds Bay, south of Gladstone, Australia, where they had washed up on shore. They are generally trawled along the coastline, but can also be found in certain areas on mudflats. Trawled specimens are clean, whereas the shells found on mudflats are often worm-eaten and damaged.

The egg cases averaged ten inches in size. The young, which can be seen in Figure 1, have very high spires. The sexes are separate and fertilization is internal.

I thank Mrs. Heidke of Australia who sent me this egg mass for my collection which has now reached over seventy species.

Beatrice Winner, 342 Southwind Drive #101, North Palm Beach, FL 33408, collects and studies molluscan egg masses.

## BEST OF THE NEWSLETTERS:

(This Spring, your editors initiated as a regular feature a writing competition designed to encourage amateurs to write about their hobby, and to promote club newsletters. We chose the winner from among publications which regularly exchange with us. We are pleased to introduce the first Best of the Newsletters, from the January 1987 issue of *Shell and Tell*, publication of the Gulf Coast Shell Club, edited by Jim and Linda Brunner:)

## A MASON JAR AQUARIUM

by Linda and Jim Brunner



In December, when school is out for teachers and tides are minus, shellers have choices. They can sit and contemplate their navels, do last minute shopping, go shelling every waking moment or catch up on maintenance around the house. Jim and I combined two of these.

Because we live on a bay, nature forces us to reclaim, from time to time, some of the natural resources she moves around — namely sand. It has been a couple

of years since we have had to do this, and Hurricane Elena did move a lot of sand from our yard. As she did this, she almost closed a navigable channel in our property. Because we were involved in studies this past year, this filling in has meant little. But as we began to emerge from the study cocoon, it became obvious that the channel needed to be dug out again.

The best time to reclaim one's sand from the sea is during winter low tides. Armed with wheelbarrow and shovel, Jim trudged out to the island to reclaim OUR eroded dirt that threatened to close the channel. As he began, he thought of the *Tagelus plebeius* shells we had found during the summer. We were not sure if Elena had damaged the colony, or if she had moved some remains to our area. Watchful as he shoveled, he soon discovered live specimens. Their depth in the sand was approximately one foot.

When we speak of sand, we are not referring to the sparkling clean variety. A more apt description would be foul-smelling muck. In checking the literature, we found that this type of bay bottom is their favorite habitat.

Having tossed several specimens into deeper water, Jim decided to bring some in to observe. First we placed two in a jar with bay water and watched them for several days. During this period, we observed their siphons extending to twice the length of the shell. Then we lost one of the specimens due to siphonal damage during a water change.

Next we decided that it would be interesting to observe their burrowing techniques. For this we needed some sand and a larger jar. We grabbed a Mason jar and collected some sand from the original habitat. After the sand settled, we added the remaining original specimen and a fresh one. The older one dug in after about 48 hours, and the other followed shortly thereafter. They did this in stages, using their foot to shove sand to one side until they could slide their shells halfway into the sand. After this, each seemed to sink into the sand and no movement was visible to us. A few days later Jim brought in two more specimens so we could observe again to see if we had missed anything. Because the others had been slow to adapt, we placed these new specimens on the sand and ate our lunch. Thirty minutes later, as we were cleaning dishes, we were

amazed to find no trace of the shells except for siphonal holes.

We currently have five specimens in a large, clear glass jar. When we changed to the larger jar, we timed the "digging in" process. The smaller specimens — about 24mm — took approximately 48 seconds to disappear, while the larger one — 40mm — took twice as long. Sharing the jar and sand is a *Macoma constricta* (Bruguiere, 1792) from the same area.

All that is observable of the *T. plebeius* specimens is siphons. Each shell has two. One is an intake siphon and the other is an output. They are filter feeders feeding on matter suspended in the water. The retracted siphon holes change positions, leading us to suspect the possibility of in-sand horizontal burrowing. The *M. constricta* is not visible at all. His path through the sand can be seen just under the surface, and resembles that of a sand dollar.

Our jar aquarium is now five weeks old and we offer the following tips: If you want to observe burrowing bivalves, just grab an old Mason jar and some sand, and have a daily supply of salt water available. They make great pets, as they don't have to be walked, don't bark or lick your face, don't claw the furniture, and it isn't necessary to buy expensive food for them. However, unlike most aquaria where there is a lot to see, viewing one full of burrowing bivalves has all the romantic adventure of watching paint dry.

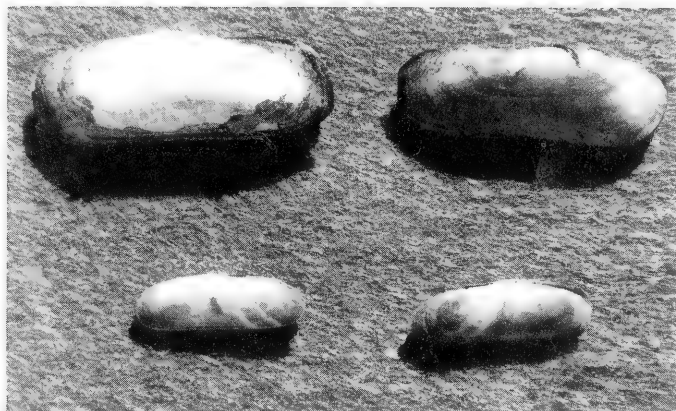


Photo by Jim and Linda Brunner

(Top) *Tagelus plebeius*; (bottom) *Tagelus divisus*.

From the family Solecurtidae Orbigny, 1846, *Tagelus divisus* (Spengler, 1794) and *Tagelus plebeius* (Lightfoot, 1786) inhabit a few of our local bays in muddy sand. The ugly duckling of the pair is *T. plebeius*. A very fragile shell — its common name of Stout Tagelus must refer to obesity! — it is chalky white with a dull brown, flaky periostracum over fine concentric wrinkles. In shape it is oblong and somewhat inflated. The posterior end is round, while the anterior end is obliquely truncated. The hinge has two small cardinal teeth with a bulbous callus behind them. The range of *T. plebeius* is from Cape Cod to Texas and the West Indies. It reaches 3½ inches in length, but in our area specimens rarely exceed two inches. *T. plebeius* is found from the low tide line to about 20 feet.

*Tagelus divisus*, the Purplish Tagelus, on the other hand, is a diamond by comparison. Named by Spengler, a protege' of Linné, *T. divisus* is smaller than *T. plebeius*. It ranges from one to 1½ inches in length and is covered by a thin glossy brown periostracum. The interior of the shell is whitish purple to pink, and the exterior has several darker brownish rays spreading outward from the hinge, appearing to overlay the purplish color which shows through from the inside. The valves are reinforced by an internal radial rib running across the center of the valves that is often obscure. It also has two small cardinal teeth that are anterior or forward of the rib. It



ranges from Cape Cod to Texas and Bermuda.

These drab species are rapid burrowers and are often found in brackish water, although we did find *T. divisus* only in the clean, sandy areas of St. Andrew Sound and St. Joe Bay. All in all they're not much to look at (except to others of their species, or an occasional predator) but they're the only Solecurtidae we have.

(The March-April Shell and Tell announced the following:)

**MASON JAR AQUARIUM — A POSTSCRIPT** We blew it! And because we did, we have to add a tragic footnote to the last newsletter's lead article on raising *Tagelus plebeius* in a Mason jar. On a recent shelling trip, we were delighted to capture a live Amber Bubble, *Haminoea succinea* (Conrad, 1846) — a first. Returning home tired but happy, we dumped the bubble into the aquarium with plans to study it later. Later turned out to be around dinner time when we sat down to read about our new visitor. The reading proved interesting until we hit the line that said, "Bubble shells are generally carnivorous, swallowing their prey alive . . ." Four eyes shot to the jar — but, alas, too late! Not only had we found a live bubble. We had found a hungry live bubble. That little rat had nailed two of our four *Tagelus* in the space of a few hours. We hope he enjoys his new home, which is about thirty feet out into Fanning Bayou.

## HOW SWEET IT IS

by Mili Backus

The 16th Annual COA Convention in Fabulous Ft. Myers, Florida on July 11-15, 1988 will be guests of Southwest Florida Conchologist Society.

It was joyous bedlam at SWFSC Headquarters when President Gene Herbert received word from St. Louis that COA had unanimously accepted the invitation to celebrate its 1988 Annual Meeting in Fort Myers. Phones started ringing all over the "City of Palms" and its outposts in North, South and East Fort Myers, Sanibel and Captiva Islands, Cape Coral, Estero, Bonita Springs and Fort Myers Beach.

The new and magnificent Sheraton Harbor Place, on the banks of the Caloosahatchee River, with a panoramic view of the city and overlooking the beautiful yacht basin, is delighted to welcome the COA Convention in July, 1988. The hotel has 452 luxurious suites, with handicapped and non-smoking units, one indoor and two outdoor pools, plus an aqua lounge with poolside entertainment, tennis courts, shops and boutiques, a beauty salon, health spa, excellent restaurants, boat docks, boat rentals, cruises, and championship golf nearby. There's inside hotel parking for 556 autos and up to 400 are reserved for COA free of charge during the Convention.

SWFSC members are volunteering in force to work on various committees to insure a super wonderful COA "SWEET SIXTEEN" Convention in 1988. Already General Convention Co-Chairmen Gene Herbert and Al Bridell are deep into early planning stages. Vivienne Smith heads up Registrations, ably assisted by Loretta Rupert, Ernie and Murial Jones, and Peter and Virginia Lee. Fascinating field trips are being checked out by Dennis Dworak. Bill Shaw is Convention Treasurer. Solicitations for the COA Shell Auction and door prizes are in the capable hands of Olin Bell and Bart Zanarini. Bill Hallstead will coordinate the Dealers' Bourse. Jean Hallstead is creating a fantastic "Christmas in July" theme for COA's "Sweet Sixteen" Banquet. Reams of publicity are flowing out of Mili Backus's pen. And this is just the beginning!

There's so much to do, to see, and to enjoy in Southwest Florida that SWFSC suggests COA members start seriously considering extending their stay in this exciting area beyond the five days of the Convention. Rates at the Sheraton Harbor Place are \$55 per night for single, double and up to four occupancy. This rate applies three

days before and up to three days after the Convention. Eleven major and four commuter airlines serve the new Southwest Florida Regional Airport, only 30 minutes away from downtown Fort Myers. Transportation to and from the Sheraton via Sunlines is free, courtesy of the hotel.

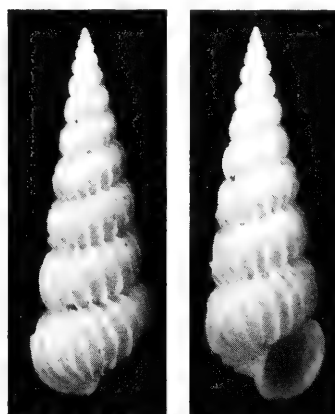
Circle July 11-15, 1988 on your calendar today and share with us the wonder and delight that only COA can generate. Come help us make this "Sweet Sixteen" a memorable one.

**Speaking of conventions,** COA needs a host club for 1989. It's not too early to start the planning phase. To find out more of what is involved, you can request a sixteen minute slide/tape/script presentation that outlines all aspects of hosting a successful convention. And, we have written a "How-To" handbook on "... Everything you wanted to know about hosting a convention but were afraid to ask." For more information, write the president.

## THE ELUSIVE WENTLETRAP, *Epitonium gradatum*

by Norman D. Paschall

In April, 1844, Sowerby described this species as *Scalarina gradata* from specimens Hinds brought him from "Amboyna," an island in the Moluccas Group, Indonesia. Reeve, Tryon and others perpetuated this incorrect locality record. The type locality was eventually restricted to Ecuador. Over the years, this species has picked up a few synonyms: Carpenter in 1856 gave it the name *Scalaria subnodosa*, and Reeve in 1874 called it *Scalaria nodosa*. The type locality for both names was Panama. Both Reeve and Tryon noted that these names were synonyms of *E. gradatum* (Sowerby, 1844). Lowe in 1932 described it as *Epitonium (Nitidiscala) gaylordianum* from Montijo Bay, Panama. Then in 1974 DuShane presented it as *Epitonium (Aspersiscala) gradatum* (Sowerby, 1844), with both *E. subnodosum* and *E. gaylordianum* as synonyms. She also cited Panama as the locality for this species, based on two specimens in her private collection.



Photos by Pete Bright

In July 1977, I received a couple of collections for study and identification, wherein appeared two pairs of *Epitonium gradatum* from Costa Rica. Thus in November, 1985, I was off to Costa Rica where I managed to collect three nice specimens as well as to see three others, all collected at the high tide line there.

In February 1987, on a return trip to Costa Rica, everyone in our group managed to collect at least one specimen, a total take of 39 specimens, all beach collected. Though we have not located a live specimen, we do believe we have located a good source; Costa Rica seems to be a prime locality for this elusive wentletrap. The largest specimen collected was 41mm x 13mm with ten plus whorls and sixteen varices per whorl. The number of varices ranged between twelve and eighteen per whorl.

### References consulted:

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## FIGHTING BYNE'S DISEASE

by Ted Davies

In the June, 1986 *AMERICAN CONCHOLOGIST*, I offered my views on the cause of shell deterioration in areas with a seasonal hot-humid climate. Even before the issue hit the streets, a few of my friends asked where I dredged up my "Dew Theory." In a word, the source was my observation of rusty car bodies!

This calls for some elaboration. The major cause of car body rust is not winter ice and salt, but oxidative corrosion from the inside out. This applies especially to doors and other hollow body panels which have not been anti-rust treated by the manufacturer. It results when the heated car body cools rapidly after the engine is turned off. Even on a hot, dry day, the air immediately around the car contains a great deal of water vapor, a major product of the car exhaust, and this air is sucked into the cooling panels through drain holes. This situation is aggravated by many misguided drivers who "gun" the motor just before switching it off. Thus cars corrode from oxygenated dew, shells from carbonated dew.

The object of this paper is to present methods of improving the immediate environment of shell collections. I hope readers will offer other ideas and perhaps better ways to reduce the problem.

The identified sources of shell deterioration and my proposals for reduction of risk are:

**1. Woods of the *Quercus* (oak) genus, and no doubt others as yet not specifically identified.** It is ironical that the fathers of modern shell collecting, most of them resident in Western Europe, who established the restrictive and sometimes arbitrary rules for the organization and storage of shell collections, should have sowed the seeds of destruction of their own shells! They were of an elite class, well educated and wealthy. Oak was the wood of prestige, the symbol of accomplishment, thus most Victorian mansions and museums have oak-panelled walls and oak furnishings. If you're thinking that the specimens brought back to New England by ordinary sailors would have escaped this fate, bear in mind that most of these objects were exposed to the acid fumes of woodburning heaters and open fireplaces typical of the period.

Wood etches! Metal rusts! What to do? I favor the use of the many available systems of linking, acrylic-base, plastic drawers, sold under trade names like Lucite, Plexiglass and Perspex. These variable cabinet components are available worldwide. In any specific system, the drawer units have a constant depth, but vary greatly in width and height, based on multiples of a specific factor. Thin separators are available to compartmentalize each drawer, as are nameplates for the front face. They will not solve the long-term "dew" problem, but neither will they contribute any destructive factors to the atmosphere.

**2. All climates in which the hot and wet seasons coincide.** This type of shell erosion prompted the previous paper on the subject. The obvious answer is to avoid the nightly deposit of carbonic-acid-containing dew, by use of a dehumidifier. These devices are usually quite reasonable in cost and available in the areas where this dew effect exists. The only problem is that the built-in switch turns the device on when the air temperature starts to rise, and off before it drops to the minimum, so the cycle will operate several hours earlier than is optimum for our purpose. To overcome this, you may have to bypass this switch and use an ordinary external timer, set to start about 1600 and to run for three or four hours.

Of course there are other ways to protect your shells. These all involve coating the shells with a transparent, inactive substance. If this suggestion raises your hackles, please consider your personal reason for spending money and time on your shells. Is it for research purposes, where the shell may suffer some kind of physical or chemical damage? If so, you will surely choose the least perfect and least valuable specimen. If you collect for any other purpose, including study, display and simple pleasure, this is certainly the most direct way to preserve your shells. Actually, the coating of shells was permitted by the nabobs who drew up the original code

for collectors; they promoted "a light coating of mineral oil." Percy Morris writes that "some workers (meaning professionals) use olive oil" which "becomes rancid — and attracts insects. Never coat your shells with lacquer, varnish or shellac." This latter advice is certainly valid, since these substances tend to chip and darken, and some of the driers used in their preparation would probably attack the shell surface.

Of course you can ensure the highest level of permanency and artistic display for a few special prizes in your collection by embedding the entire shell in plastic. If you only have a few specimens to embed, it is best to have this done by someone with experience. Of course you must realize that this embedding treatment permanently converts your specimen to an ornament.

**3. Storage conditions favorable to the growth of molds and fungi, and exposure to harmful, volatile substances.** As suggested in the previous article, these sources of erosion can easily be eliminated by locating the shell collection as far as possible from the kitchen and laundry areas, and on the shady side of the house where temperature variations are minimal.

Above all, it is important that you keep everything in a reasonable perspective: ninety-five percent of the material in most collections is very common and easily replaceable, and the value of your precious collection in fifty years will rest mainly in the fact that "this was Grandma's favorite shell." So take it easy and remember that a hobby is for relaxation and pleasure.

**4. Natural fossilization.** The mollusk shell consists of microscopic hard crystals of calcium carbonate embedded in a matrix of organic tissue deposited in ultra-thin layers by the mantle. Over varying time spans, ranging from decades to millennia, the hard crystals convert to much softer limestone and the animal material disappears. The process of fossilization is complete. We have learned to delay it, but the end is inevitable. With sadness I think of this relentless deterioration whenever I listen to my best-loved music, Franz Liszt's "Les Preludes." At the top of the original score, he wrote, "Life is but a prelude to death."

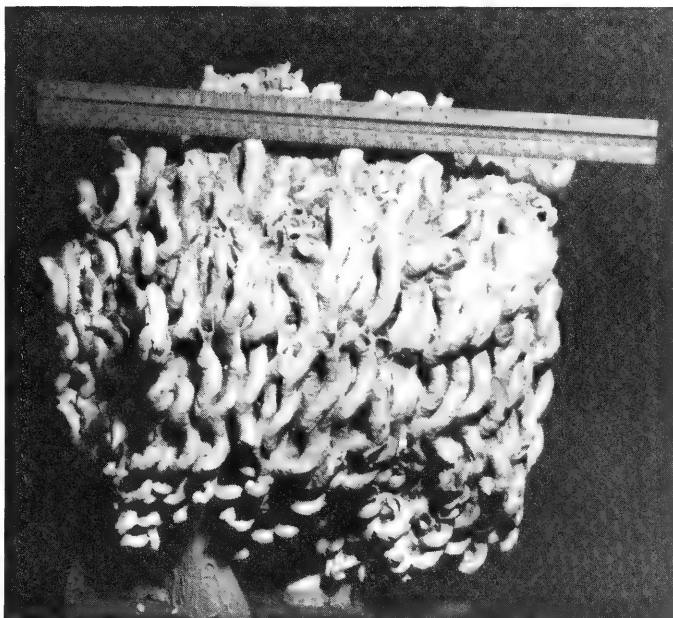


Photo by Bill Boger

**A magnificent clump of *Vermicularia recta* Olsson & Harbison, 1953, from Bill Boger's fossil collection. It weighs 26 pounds, including the sand that holds it together.**

## MEET THE PRESIDENT

by Mary Ruth Foglino

Our newly elected president, Don Young, has been a member of COA since 1979 and has attended all the conventions since his first in 1980. Don served as chairman of the 1984 convention in St. Petersburg, and co-chaired the publicity committee with Mary Ellen Akers for the 1986 Ft. Lauderdale convention.

Don is a charter member of the Suncoast Conchologists Club, for which he currently plans the field trips. He also attends meetings of both the St. Petersburg and the Sarasota Shell Clubs, both within driving range of his Seminole, Florida home. Altogether, Don is a member of fourteen shell clubs in the United States and four overseas.

Having taken early retirement in 1977 after a career as a project engineer in avionics ground support with the Air Force for 25 years and with the Navy for eleven, Don moved to Florida. Originally from Lancaster, Pennsylvania, he has travelled to Europe, Africa and Japan, and even lived in Hawaii for two years during World War II. Unfortunately, these trips preceded his collecting days. Don's interest in conchology began in 1978 when he cut his foot on something sharp in four feet of water at Fort DeSoto, Florida.

Curiosity impelled him to find the object, the siphonal canal of a live Lightning Whelk. His companions, neither of whom had ever found one, were delighted, so Don dove down and found two more whelks buried in the sandy bottom.

This significant day started Don into what has developed into a worldwide collection, separated by families, and housed in about forty display cases and fifty IBM card containers in the shell room of his home. Dorothy Young, Don's wife since October, 1984 (shortly after the St. Petersburg convention) enjoys hunting and field collecting, but Don takes over on cleaning and cataloging the shells.

Don has won the COA Trophy for his shell show exhibit, "The Adopted Shells," which showed many club emblems and the shells from which they were designed. He re-exhibited these seventeen cases at the St. Petersburg convention. He has also been awarded the Dupont Trophy and the Masters Trophy for a scientific exhibit at the Southwest Florida Conchological Society Shell Show.

The COA, Don believes, has something to offer to shell collectors of every type and level, no matter where their interests lie.

## BOARD TALK

From **Treasurer WALTER SAGE**: You will notice the change in the dues reminder that accompanies this issue of **AMERICAN CONCHOLOGIST**. We have adopted this format in hopes that this sheet will attract your attention and result in speedy payment of 1988 dues (Please refer to my BOARDTALK message in the June issue). I want to repeat here that all those members who joined at ANY time in 1987 will receive all four issues of **AMERICAN CONCHOLOGIST** for 1987 and are members for the **CALENDAR YEAR 1987** — thus you ALL (unless you are among the few who have paid in advance) need to send in your dues for 1988. And the sooner these dues payment are received, the less work there will be for your officers. 'Nuf said!!

Thanks to all of you **SOUTH FLORIDA** members who have sent in your change in ZIP CODE. We would appreciate hearing from the rest of you so we can update our computer files. Correct addresses and zip codes are vital to your receipt of **AMERICAN CONCHOLOGIST**, because Bulk Mail is seldom forwarded if it goes astray.

We have plenty of COA pins available from the Treasurer — \$2.50 postage paid. The official COA T-shirts are available in several colors and sizes — \$8, and there remain seven of the COA tote bags — \$4 each. Please write to Treasurer Walter Sage for details — I'd rather not have to carry all those to Ft. Myers next July.

### From Shell Show Chairman **DON DAN**: Preliminary Release of 1988 Shell Show and Meeting Dates:

The following list is by no means complete. For those dates listed though, most of them have been contracted for. One of the purposes of releasing the dates this early is to minimize shell shows being planned on the same dates. A more comprehensive listing should be available in the December issue.

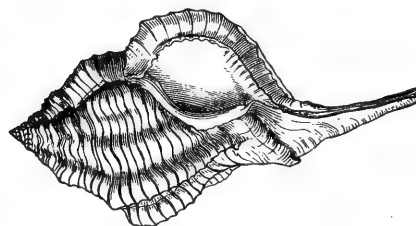
- |              |   |
|--------------|---|
| Jan. 15 - 17 | Naples Shell Show                           |
| Jan. 22 - 24 | Astronaut Trail Shell Show                  |
| Jan. 29 - 31 | Greater Miami Shell Show                    |
| Feb. 5 - 7   | Broward Shell Show                          |
| Feb. 12 - 14 | Ft. Myers Shell Show (was 3rd week of Jan.) |
| Feb. 19 - 21 | Sarasota Shell Show                         |
| Feb. 26 - 28 | St. Petersburg Shell Show                   |

- |                 |   |
|-----------------|---|
| Mar. 3 - 6      | Sanibel Shell Fair                          |
| Mar. 19 - 20    | Treasure Coast Shell Show (New show)        |
| Mar. 25 - 27    | Orlando Shell Show                          |
| Apr. 29 - May 1 | Long Island Shell Show                      |
| Jun. 19 - 24    | American Malacological Union Annual Meeting |
| Jul. 11 - 15    | Conchologists of America Convention         |

### Register Your Record Shells

Bob Wagner is busy keeping the **STANDARD CATALOG OF SHELLS** size records up to date. Write to him about shells you think might be the biggest of their species. He is eager to receive your size listings, so long as the data is complete. When you write, be sure to include the full proper name of the shell, the exact size, measured with calipers, the owner's name, the date collected or acquired, the locality of collection and who verified the measurement. Bob's address: Bob Wagner, Senior Editor, 19751 S.W. 79th Court, Miami, FL 33189.

**NOTICE TO RESEARCH SCIENTISTS:** I collect extensively, especially in my home of West Florida, also in southeast Florida and the Caribbean. I would be pleased to provide preserved specimens (If I can find them) to researchers who need animal tissue for dissection. I also have species/locality lists for many areas of Florida and the Caribbean. **Peggy Williams**, c/o 7201 Bradenton Road, Sarasota, FL 34243.



## REVISED GUIDELINES FOR THE CONCHOLOGISTS OF AMERICA AWARD

by Donald Dan  
COA Awards Committee Chairman

The Conchologists of America Award, consisting of a trophy and a pin, has been established to encourage open participation by shell collectors at shell shows and to stimulate improvements in shell show.

This award, based on sound and impartial judging processes, is given at a shell show to a single scientific (vs. artistic) exhibit which best furthers the interest in shells and shell collecting.

The COA Award may be given only to a blue ribbon or first prize winner and may not be given to:

- an exhibit receiving another major award (i.e. DuPont, Smithsonian, American Museum of Natural History, etc.) at the same show or occasion.
- an exhibit which has previously won a COA Award at any show, unless fifty percent or more of the content and format have been changed or added.
- a shell dealer, unless the exhibit is made entirely of self-collected shells.
- a professional malacologist.

There is no limit as to the number of times a person may win the COA Award.

The COA Award may be given only at shell shows open to the public, where no restrictions are placed on club or regional affiliation of the exhibitors.

This award may be given to a shell club for its shell show no more than once a year. It is sent free of charge upon approval of a trophy request.

Sponsoring clubs are advised to incorporate the above guidelines in their respective shell show rules and to have them communicated to all prospective exhibitors.

All clubs are encouraged to obtain membership in COA.

The COA Award Committee Chairman shall be responsible for receiving and processing trophy requests in a timely manner and for overseeing that the above guidelines are adhered to.

**PLEASE NOTE: Any Shell Show Chairperson who has not received the Trophy Request Form for your upcoming show is invited to contact Donald Dan, COA Trophy Chairperson, at 2620 Lou Anne Court, West Friendship, MD 21794. Telephone: (301) 442-7353.**



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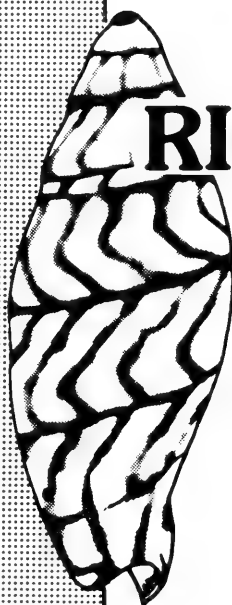
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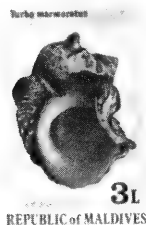
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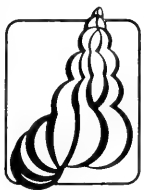
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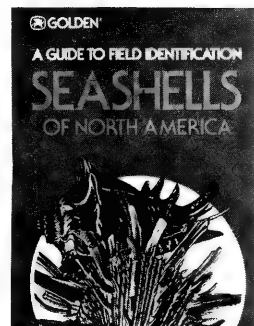


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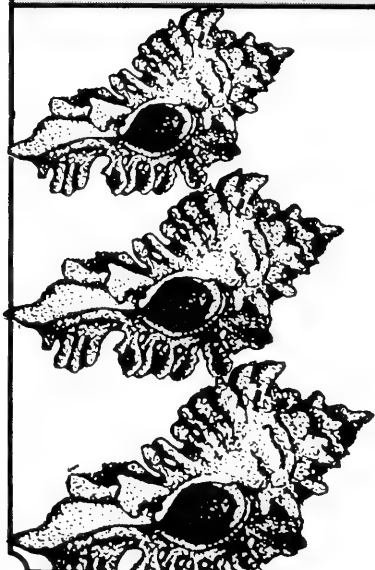
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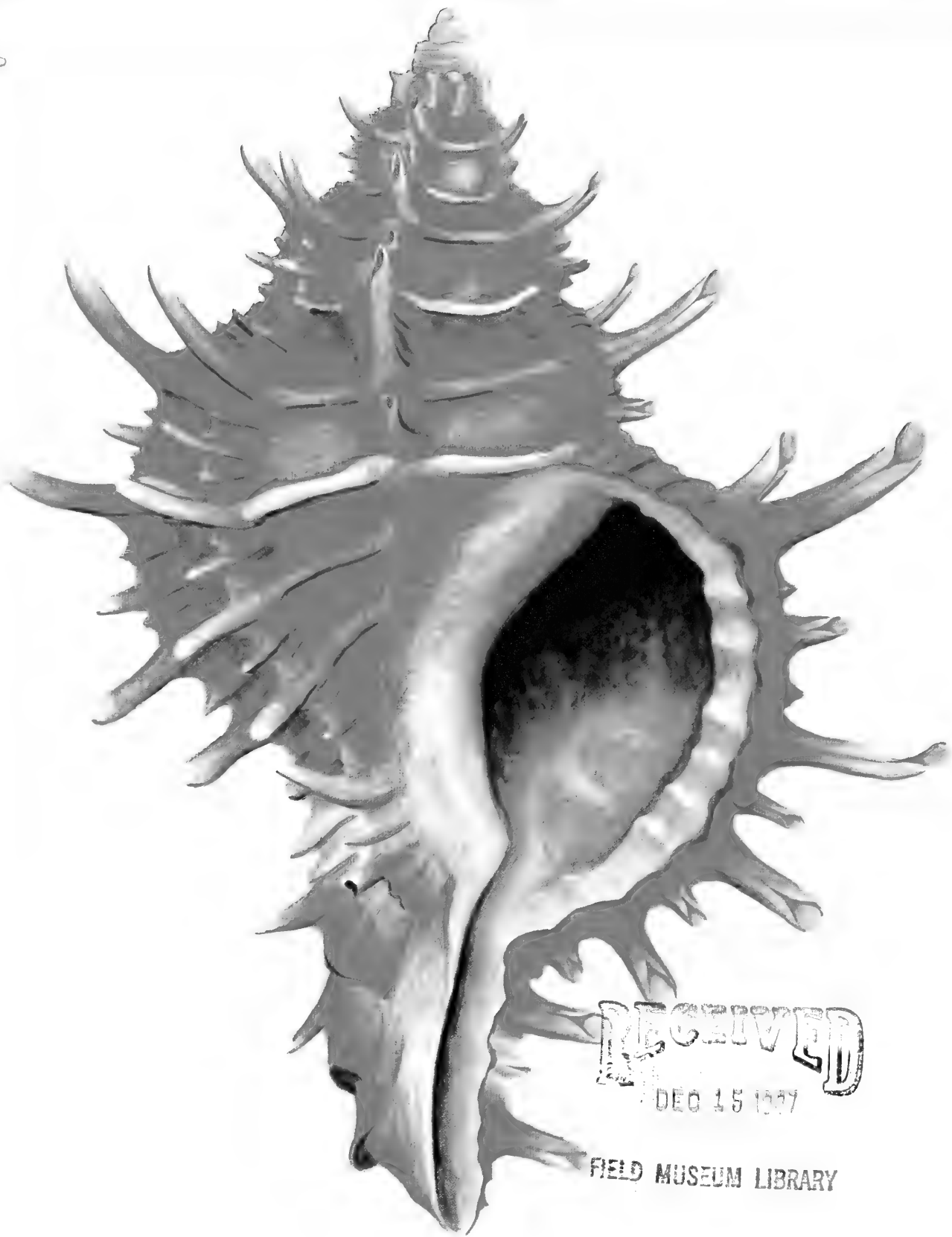
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 15, NO. 4

DECEMBER 1987





## CONCHOLOGISTS OF AMERICA, INC.

A Collective Devotion To  
Advancing-  
Conchology.

In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and world. An annual convention is held each year in a different part of the country.

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Articles in *AMERICAN CONCHOLOGIST* are not copyrighted; we welcome republication, with proper credit. Its editors solicit comment, letters and articles of interest to shell collectors, subject to editing. All correspondence should be addressed to the Editor.

### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January.

**INDIVIDUAL** (per year) \$10.00; **FAMILY & CLUB** (receiving one *AMERICAN CONCHOLOGIST*) \$12.50; **OVERSEAS** (Air Mail Postage) \$20.00. New members send check or money order to the **MEMBERSHIP CHAIRPERSON** Bobbie Houchin, 2644 Kings Highway, Louisville, KY 40205. Renewals are sent to the **TREASURER**. Back issues are available from Mrs. Houchin @ \$2.50 each.

Cover: A watercolor illustration by John Timmerman of *Muricopsis sunderlandi* Petuch, 1987, drawn from a 21mm specimen in the collection of Kevan Sunderland. The shell was taken in 10 meters under coral rubble off Cay Sal, Cay Sal Bank, Bahamas, 1982.

## PRESIDENT'S MESSAGE

"Please get well, quick, quick, quick . . ." is what we all wish for **Phyllis Pipher**. Due to her recent ill-health, the Piphers have reluctantly had to resign as our membership chairpeople. On behalf of all COA members, I would like to thank **Phyl** and **Bernie** for the seven years of dedicated service in building up our membership and for the year each served as COA Vice President. We salute you for a job well done.

And we welcome our new Membership Chairman, **Bobbie Houchin**, also the treasurer and COA Local Club Representative for the Louisville Conchological Society, Louisville, Kentucky.

Have you paid your 1988 dues yet? Your 1987 membership expires December 31. Renew early to help us to avoid the expense of sending out reminders. The money you help us save will support a bigger and better publication and help us fund our very special grant award program for molluscan research, scholarship and publications. Also, your early dues payment will facilitate the publication for you of an up-to-date membership roster to be distributed to all COA members in March, 1988.

And have you done your part in helping COA over the **800 Membership Hurdle**? Recruit a member, just one member and you'll help COA increase in size and effectiveness. More and better publications will be the result, more benefits to members, more funds for the Grant Awards program, more fun at the conventions.

Some of our members are doing a great job of recruitment. **Alta Van Landingham**, COA Club Rep for the North Carolina Shell Club, set up a COA table at her club's shell show in October and demonstrated that there are many shellers who haven't heard of COA. She expounded on the benefits and pleasures of membership and obligingly on-the-spot-collected COA dues for six new COA members! Her secret? It's no secret! Make personal contact. Tell them about us! **And let's go over that 800 membership hurdle!**

Wishing you joyous holidays and happiness in the new year!

Shellingly,  
Don



**Peggy Williams**, winner of the COA Trophy at the 1987 Jacksonville Shell Show, for her exhibit, "From Sea to Shining Sea."

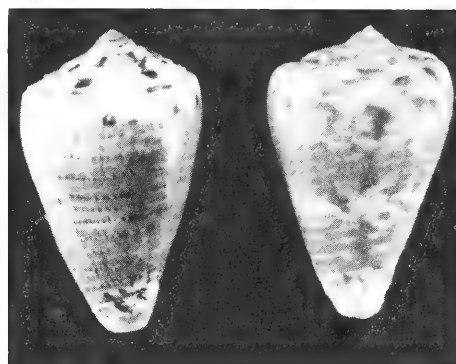
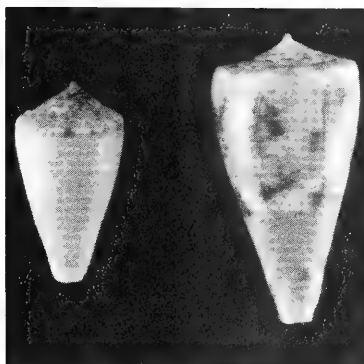
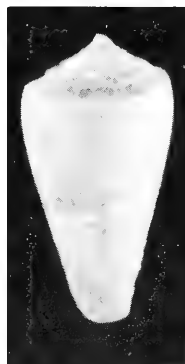
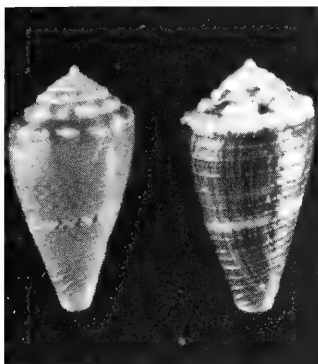
## NEW U.S. SHELL STAMP UNCOVERED

The keen-eyed Abbotts, COA members and conchophilatelists, unexpectedly spotted a familiar object on the sea bottom in the 22-cent American Lobster postage stamp, recently issued in the 1987 American Wildlife series.

Was it a clam, a mussel or just a rock? Tucker phoned the artist, Charles L. "Chuck" Ripper of Huntington, West Virginia. "I used reference material from an article," he explained, "in the April 1973 issue of the National Geographic." Opening a fold-out photograph by David Doubilet on page 471, in Luis Marden's article, "The American Lobster, Delectable Cannibal." Cecelia and Tucker were at once able to identify the mysterious bivalve as a Northern Horse Mussel, *Modiolus modiolus* (Linné, 1758). The scene was photographed off Gloucester, Mass.

This is the only mollusk to appear among the 50 new wildlife subjects which include 31 mammals, 13 birds, one turtle, four insects and now the infamous bivalvian lobster. It is the sixth U.S. postage stamp to bear a mollusk, the second with a New England mollusk species, and only the second filibranch lamellibranch, as if the U.S. Postal Service will know what that is — (R.T.A.)

*AMERICAN CONCHOLOGIST* does not knowingly carry original descriptions of species. We do not wish to be cited as an authority for new taxa.



Photos by Kevan Sunderland and Carl Sahlberg

**DEEPWATER REEF FAUNA** from left: *Conus cardinalis*, 25mm, Bimini; *conus patae*, 23mm, Cay Sal; *Conus havanensis*, 17mm, and *Conus arangoi*, 32mm, both from Cay Sal; *Conus abbotti*, 36mm, Eleuthera.

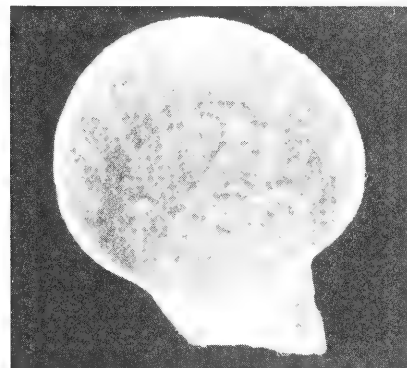
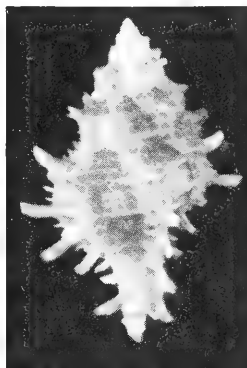
## *Muricopsis sunderlandi* Petuch, 1987

by Kevan Sunderland

In 1979, during dive trips to Cay Sal and the outlying regions, I collected the only known specimens of an interesting *Muricopsis* in deep water in heavy coral areas. Upon finding the shell I was sure it was unlike any other Caribbean *Muricopsis* known at that time, including *Muricopsis huberti* Radwin & D'Attilio, 1976, from the lower Caribbean and *Muricopsis oxytatus* (M. Smith, 1938), found throughout the Caribbean Province.

Moreover, the little *Muricopsis* has a very interesting habitat. At this time, it has only been collected in a small area of the Cay Sal Bank region of the Bahamas. The species seems to prefer water deeper than 60 feet, and as deep as 140 feet. It is a member of a poorly known deeper water reef fauna that includes such species as *Chlamys multisquamata* (Dunker, 1864) in the northern Caribbean;\* *Conus patae* Abbott, 1971; *Vexillum zythochoa* Melvill, 1888; *Turbo cailletii* Fischer & Bernardi, 1856; *Conus havanensis* Aguayo & Farfante, 1947; a northern Caribbean variety of *Conus cardinalis* Hwass, 1792 and a *daucus*-like cone described as *Conus arangoi* Sarasua, 1977, that is highly coronated and bright red in color with beautiful black flammules.

One can only imagine what other new and exotic species might live deep in the reef. Occasionally, a hermit crab might carry a shell on its back into the daylight of the recent coral formations. Otherwise this habitat and its fauna are wholly inaccessible, beyond the



*Muricopsis sunderlandi*, 23mm, and a lemon yellow *Chlamys multisquamata*, both from Cay Sal, Bahamas.

rays of light that pierce the deep coral holes of most Caribbean reef structures. Still, it is amazing that so beautiful a shell could have been overlooked for so long. *Muricopsis sunderlandi* surely would have come to light sooner if it had lived in a habitat where waves could wash it out during storms, or if it lived under easily accessible rocks like its more common cousins.

\**Chlamys multisquamata* is not generally a shallow water shell in the northern Caribbean, although in the southern Caribbean, it has been collected in as little as 2 to 3 feet of water.

## DIVERS' MECCA: THE BAY ISLANDS OF HONDURAS

Three well-known collectors and divers report on their experiences in the exciting and relatively-unexplored waters of this group of islands in the Bay of Honduras, finding molluscan forms and species new to science.

### DIVING THE GRASS BEDS

by Kevan Sunderland

Pick one place in the world, check with everyone you know, from museum people to private collectors, plan your trip with care, and you still can't guarantee finding shells that will be interesting additions to your collection, especially if you already have a large collection of Caribbean and Western Atlantic gastropods, as my wife, Linda and I do. But if you're addicted to collecting as I am, you keep trying.

In April, two years ago, a group of shell collectors decided to collect in an area that, at this point was relatively unexplored: the Bay Islands of Honduras. When Carl Sahlberg, Wayne Harland, Gene Everson and I stepped off the plane, we had no idea what we would find.

The Bay Islands are located off the Caribbean coast of Honduras and are made up of four island groups: Utila, Cayos Cochinos, Guanaja and Roatan. The waters around the island groups contain all the habitats typical to the Caribbean Islands. The area is rich in reefs; they range from shallow water patch reefs to coral walls that start in five feet of water, fifty feet offshore, and stair-step their way down 500 feet to the bottom. Also, around these islands are vast areas of turtle grass in water twenty to eighty feet deep. And there are miles of brackish water mangrove habitats.

We immediately found collecting on the tops of the reef flats to be very poor because of the destruction of the reef flats, both by hurricanes and by the islanders. Due to high concentration of people in some areas and lack of usable land, the natives have gone out in their dugout canoes and removed the large coral rocks from the reef top to build new land for more houses in areas that were formerly coastal swamps. Searching the tops of the reef in dead areas proved to be useless without these "turnable" rocks.

That left us three areas to collect: the live coral areas, the reef walls, and the expansive areas of deepwater turtle grass and sand that ring the islands. Most collectors who dive reef areas realize that

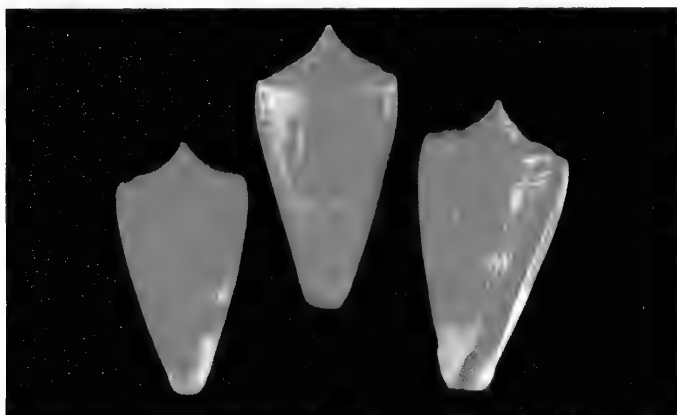


Photo by Kevan Sunderland

*Conus sunderlandi*, Petuch, 1985; 40mm.

productive collecting in live coral areas is almost impossible unless it is done at night. We tried this and found an amazing variety of mollusks that are not often seen because of their cryptic, deep coral habitat and the nocturnal habits of the species found there. These species included *Conus granulatus*, Linné, 1758, *Conus cardinalis* Hwass in Bruguière, 1792, *Conus eversoni* Petuch, 1987, a new species of *Arene*, *Anachis sunderlandi* Petuch, 1987 and other new or unusual species of gastropods. With such remarkable success, why did we stop collecting the reef and move on to grass beds?

The key to successful collecting in any area of the world is being able to find habitats that certain families seem to prefer. Although from one area of the world to the next the species may be different, the habitats are generally the same. Having read reports from other collectors who had done well with the shrimpers and lobster fishermen off the coast of Honduras and Nicaragua, we knew that if we found the right habitat and conditions in turtle grass flats, we would be surprised and rewarded. Here, with all these vast areas of sand and grass, was our chance. So why not just go out and look in the turtle grass? It's not quite that simple.

Most turtle grass species are nocturnal, and diving for them in the daytime is like looking for a needle in a rippling, green haystack. So you must plan a night dive. But a random night dive may not be successful either. You must decide what type of sand to look in. Type of sand? Not so strange as it sounds. *Conus jaspideus* Gmelin, 1791 and related cone species like very fine grained, almost muddy sand. Other cones, among them the common Florida species, *Conus flavescentis* Sowerby, 1834 like a larger grain, a sand that doesn't leave a sand plume when you run your hand through it. The very desirable *Conus cedonulli* Linné, 1767 complex falls into this group. They prefer much cleaner water, and like most other species of *Conus*, will not tolerate poor water conditions. They demand water that is not heavy in silt, either from mud or from poor water quality. Thus we wanted to avoid heavily grassed areas, a sign of muddy conditions and thus a poor cone habitat.

We also knew that in deep water off Nicaragua, the lobster fishermen and shrimpers had gotten interesting volutes and two specimens of a strange new *Cerithioclava* — a first for this genus in the Caribbean. The cerith was collected dead by the shrimpers, and was presumed by some to be a fossil that had been preserved in a mudbank somewhere offshore. We thought it might live in this habitat as well, and spent two days looking for an area that fit its known requirements.

After locating by daylight several potentially productive areas, we decided it was time to attempt a night dive. The depth of the site we chose ranged from 30-80 feet and was made up of sand with scattered beds of turtle grass. It was perfect. And what would we find?

Almost at once we were discovering strange gastropods: two new species of *Conus*, and three named cones — *C. daucus* Hwass, in Bruguière, 1792, *C. mindanus* Hwass, in Bruguière, 1792 and *C. spurius* Gmelin, 1791. We also collected a beautiful "demarcoi" type volute that looked more like *Voluta musica* than other volutes that have been collected along the coasts of Honduras and

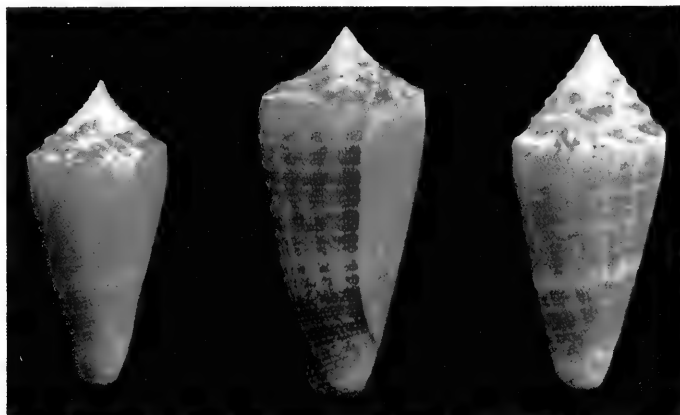


Photo by Wayne Harland

*Conus harlandi*, Petuch, 1985; 34mm; paratypes.

Nicaragua. The volute appeared almost to bridge the gap between the two species and added new confusion to a poorly understood group.

But the cones were just a small part of this interesting habitat. In the sand were strange and beautiful marginellas that could only be seen by moving aside the blades of grass. The species was at first thought to be *Marginella roosevelti* Bartsch and Rehder, 1939. But the Honduran marginella is a much slimmer shell, and is named *Marginella oblonga* Swainson, 1829, a very appropriate name. While moving the blades of turtle grass to look for the marginellas, we discovered *Vexillum arestum* Rehder, 1943. We usually locate *V. arestum* in the daytime by running our hands through the sand. It was amazing to see all these unusual miters out and about. They came in all colors, from brown-banded to beautiful orange-banded specimens.

In collecting grass and sand habitats one soon finds that one area is quickly and easily covered, so we began drift divers with the boats following us on our compass heading, carefully watching the depth as it went from 80 to 60 to 20 feet and then deeper again. In covering such a large area — sometimes over a mile on one SCUBA tank — we saw many of the habitats we've mentioned above. It was like a supermarket, going from heavy turtle grass to an open area with totally different species.

*Voluta sunderlandi* was one of the few species that didn't seem to care what its habitat was. It appeared on all bottom types. Also scattered in the grass habitat were *Cymatium femorale* (Linné, 1758) and *C. caribbaeum* Clench & Turner, 1957.

But by far the most interesting and exciting species to appear as we swam across the turtle grass and sand were the *Conus*. As we approached the sandy areas, we soon began to go into "cone mode" and get tunnel vision. We just never knew what we would see next and we tried to make our tanks last as long as possible to keep the dives from ending.

All this novelty would just begin to seem familiar and predictable and we would expect to see certain species as we swam, when up would pop surprises. For example, we really did not expect to see a 3½ inch *Cerithioclava*, and had wondered if it was really Caribbean. But while diving in about 40 feet of water, I had the shock of my life! After moving from heavy turtle grass to a sand habitat, I began looking for cones, and swam into an area of small rock rubble over sand. Here were interesting trails that looked as if sticks had been dragged through the substrate. At the end of each trail were live *Cerithioclava garciai* Houbbrick, 1980! An amazing shell and icing on the cake of a once-in-a-lifetime trip. Just imagine diving in an area where everything you find is either rare or new to science!

*Conus sunderlandi* Petuch, 1987

This species coexists with the more abundant *Conus harlandi* Petuch, 1987 in the sand and grass habitats of the Bay Islands. It shows a preference for more heavily covered turtle grass bottom than *C. harlandi* and requires clean water and gritty sand. *C. sunderlandi* was collected with *C. spurius*, which in this area ap-

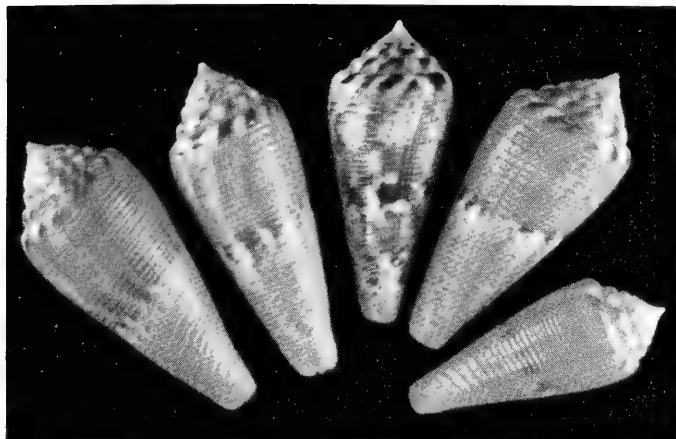


Photo by Kevan Sunderland

***Conus granulatus*, Linné, 1758; 45mm.**

pears to grow no larger than about 30mm, making *C. sunderlandi* at up to 40mm the largest cone species in the habitat. The animals of the two species are different — *C. spurius* is a light-colored animal with a dark spotted siphon, and is much more active than *C. sunderlandi*. The pink animal of *C. sunderlandi* has a small, oval operculum shaped more like that of *C. daucus* Hwass, in Bruguière, 1792 while *C. spurius* has a long, thin operculum. *C. spurius* has a curved shoulder, while that of *C. sunderlandi* is much sharper and more angled, similar to that of *C. villeginii* Fischer & Bernardi, 1857, a species found throughout the Caribbean and *C. clerii* Reeve, 1844 of Brazil. The siphonal canal is also much thinner than *C. spurius*, and the latter is a much heavier structured shell. The juveniles of both species in this area maintain the same characteristics as the adults. Also, *C. spurius* appeared to be perhaps a hundred times more common than *C. sunderlandi*; only eight specimens of *C. sunderlandi* were collected during ten days of heavy diving in their turtle grass habitat.

***Cerithioclava garciai* Houbriek, 1985**

In one grass-and-sand area, we found the first living specimens of *Cerithioclava garciai*. The habitat had never been described before, other than what Dr. Houbriek learned from the fishermen who collected the dead type specimens and from facts known about Pacific representatives of this genus.

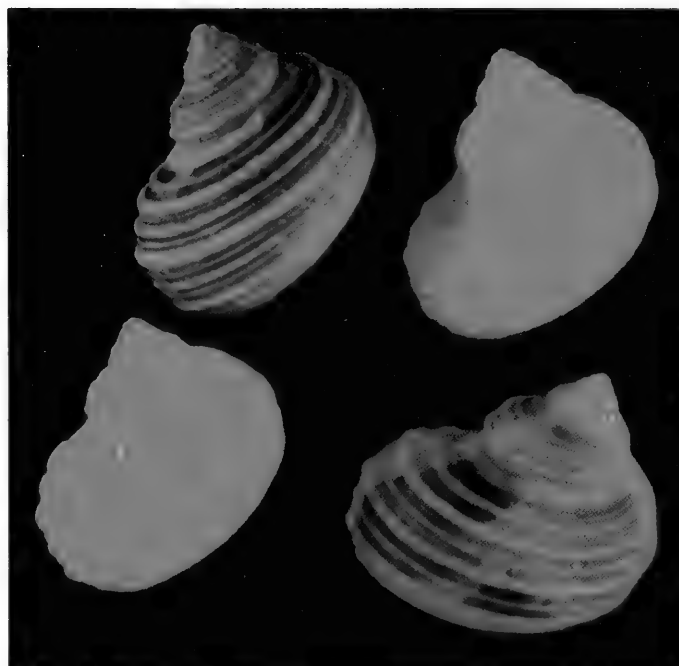


Photo by Kevan Sunderland

***Turbo caillietii*, Fischer & Bernardi, 1857, 25mm.**

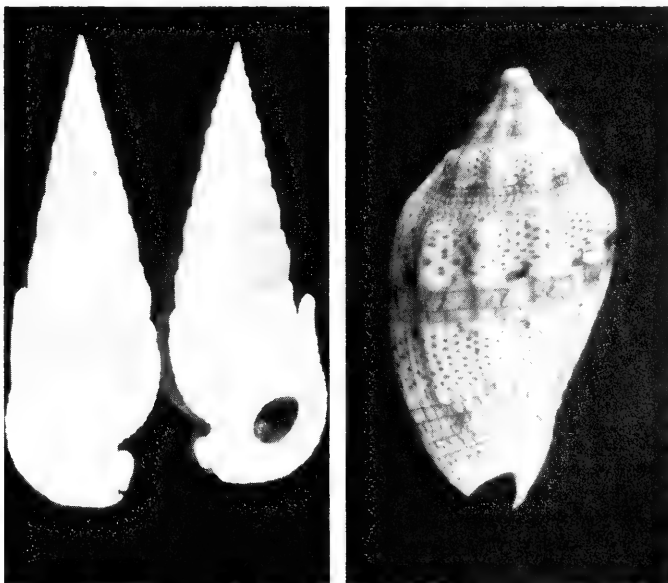
We found the cerith in 35-40 feet of water at night in very rocky, almost gravel bottom that covered brownish sand tinted by the algae that was growing in it. The species was found only in small rock-covered sand areas where it lives in very isolated colonies. The rock cover over the sand was no larger than 50 cent pieces, and was made up of both coral and broken bivalves. The cerith is a burrower, and lies hidden during the day.

**FINDING A NEW SPECIES**

by Wayne Harland

As a scuba diver and shell collector, I had the ultimate experience recently: I found a species new to science. In April of 1986, I organized a shelling trip to Utila, one of the lesser known islands in the Bay of Honduras. Its sister islands, Roatan and Guanaja, are much more popular and certainly more developed for tourists. It was this lack of development, and consequently its relatively untouched habitats which attracted us initially. Recent discoveries around Roatan were testament to the richness of the molluscan fauna there, and it seemed logical that Utila, lying eighteen miles west, would be just as productive.

When we arrived on the island, we first contacted local fishermen, both commercial hook-and-liners and shrimpers, as to the local habitat. We were impressed by the varieties of habitat available around an island less than ten miles long. It contains brackish water lagoons, shallow grass flats, extensive "ironstone" shorelines, atoll-like barrier reefs, and extensive wall-like coral formations. Here, on one small island, lie all the basic molluscan habitats! We at first explored the habitat areas looking for clues as to the inhabitants. Similarities to other island habitats, crabbed specimens, and broken shells are all pieces of the discovery puzzle which must be taken into account.



Photos by Kevan Sunderland

**Left: *Cerithioclava garciai*, Houbriek, 1985; 75-80mm. Right: *Voluta sunderlandi*, Petuch, 1985, 55mm; paratype.**

The first habitat we selected for further exploration was the moderate depth, coarse sand-and-grass areas adjacent to a small rocky cay which had many broken shells around it. During daylight hours, we fanned these sandy areas looking for the sand-dwelling species normally associated with this habitat. We found the species we expected to find in such a habitat — *Conus spurius* Gmelin, 1791, *Conus jaspideus* Gmelin, 1791, *Conus mindanus*, Hwass in Bruguière, 1792, and a shallow water form of *Voluta demarcoi* Olsson, 1965.

It was while fanning sand that the first new species appeared. It was a cone. Even at first glance it looked like no other cone that I



have ever collected. Its base color was a creamy tan-white, overlaid with a mottled, dark-brown net-like pattern. I could scarcely wait to show it to my diving companions! I motioned to my nearest dive buddies, Kevan Sunderland and Carl Sahlberg, to show them my new find. Kevan almost spit out his regulator! We surfaced to discuss how to look for more, and then we collected three additional specimens of the mystery species. Returning to the hotel, we formulated a plan to return at night to the same area, since we assumed that these sand dwellers, like other cones, would be out and about, feeding actively after dark.

We then examined the results of our collection that day. Carl had a very dead specimen of a shell that also looked very unfamiliar. Could this be another mystery species? The shell basically looked like a *Conus spurius* but had a sharply angled shoulder, a narrower aperture, and what looked like a very unusual color pattern, even though the specimen was badly faded. Since we did not know what the species were, we immediately coined the names "Conus harlandi" for the first species and "Conus sunderlandi" for the second. We returned to the collecting area that night and found fourteen specimens of "Conus harlandi" and four specimens of "Conus sunderlandi," all live. This was a trip that shell collectors fantasize about!

*Conus harlandi* is medium-sized by Caribbean standards, with an average size of 25-28mm; sub-adults are in the 15-20mm range; the largest specimen obtained to date is 38mm. In the original description in Dr. Petuch's book, *New Caribbean Molluscan Faunas*, *C. harlandi* is described as having a "low, almost flattened" spire. This is true for the holotype, but based on the type lot and subsequent collections, the spire height is more variable.

Additionally, some specimens do exhibit weak coronations in the spire whorls, which disappear as the shell matures. Disappearing coronations are common among the shells of the *Conus cedonulli* Linné, 1767 complex, and *C. harlandi* is no exception to its more southern cousins. The closest relative to *C. harlandi* is *C. granarius* Kiener, 1848. *C. granarius*, however, is a wider shell in proportion to shell length, has more pronounced coronations in the spire, and has rows of well-developed pustulations throughout the body whorl; in *C. harlandi*, some specimens have these pustulations, but they are weak and confined to the anterior portion of the shell. In the excellent review of the *C. cedonulli* complex in the *Revue Suisse de Zoologie* (October, 1985), Danker Vink and Rudo von Cosel observe that the northeastern range of the complex is Colombia. The Bay Islands of Honduras represent a 1000 nautical mile range extension for the complex. *C. granarius* is also characterized by having a variable background color, while that of *C. harlandi* has been uniformly white.

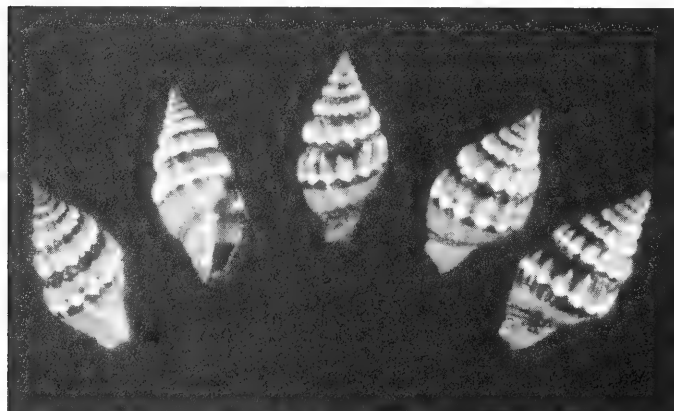


Photo by Kevan Sunderland

*Vexillum histrio*, Reeve, 1844; 15-20mm.

While *C. harlandi*'s shell pattern is reddish-brown to chestnut, the live animal is bright red and is quite mobile. We did not observe the feeding habits, nor were any egg cases found, so precise facts relative to breeding or predation are left to speculation. The operculum is relatively small in comparison to shell size, elliptical in shape, thin and relatively transparent. The shell prefers coarse,

relatively clean sandy bottoms surrounded by or near grass beds. We found them near both "turtle grass" and "eel grass," so there seems to be no preference. However, most all live specimens were in relatively open sand, not in amongst the dense grass. Although *Conus harlandi* appeared to be one of the most abundant cones in the habitat, the faunal area was very rich in other species as well. Some of the commonly found gastropods were: *Conus spurius*, *C. jaspideus*, *C. mindanus* form *duvali* Bernardi, 1862, *Falsilyria sunderlandi* Petuch, 1987, *Marginella oblonga* Sowerby, 1846, *M. guttata* (Dillwyn, 1817), *Cerithioclava garciai* Houbriek, 1985; *Vexillum areustum* Rehder, 1943; *V. hendersoni* (Dall, 1927) and *Murex rubidus* F. C. Baker, 1897.

It is exhilarating, with all the exploration done in the Caribbean, that new species such as these can be found in 25-30 feet of water by amateur collectors. It certainly points the way for additional research and detailed scientific study of some of these lesser-explored Caribbean areas. I, for one, will continue to look for these "underexplored" areas, in hopes of finding out if another bonanza like Utila exists.



Photos by Bill Doolin

Left: Spire, *Conus harlandi*. Right: *Conus eversoni*.

#### *Conus eversoni* Petuch, 1987 by Gene Everson

During our first two collecting trips to Utila, Honduras, in April and November, 1986, we found a small, unnamed cone shell. It was not surprising that this shell had not been named before. It is too small to be eaten, unlike *Strombus gigas* and *Cittarium pica*, and it is too small and lackluster, unlike *Conus granulatus*, to offer to tourists, so the natives would have had no interest even if they had noticed it. Furthermore, its small size, about 1 inch, makes it hard to see, even if you are looking for it. And finally, it would take a serious collector to know that it was unnamed, and Utila has had a shortage of serious collectors, unlike her sister island, Roatan, just twenty-five miles away.

But the main reason for its obscurity is its cryptic habitat. *Conus eversoni* hides deep in the coral reefs by day and only ventures out after dark to cling to the sides of large coral formations. Although its 20' depth is not forbidding, we seemed to have been the only collectors to have dived Utila by night.

This shell is so hard to find that it was not until my third trip, in April, 1987, that I found one. One reason it was named for me may be unique: the other three divers already had a cone species named for them! Wayne Harland, Carl Sahlberg and Kevan Sunderland had each found one or two specimens on our first two trips, but at that time thought it might be a young *Conus daucus* or *C. attenuatus*. Another collector, Bob Pace, had found one on Guanaja, another island in the Bay of Honduras, but did not follow up on it. Coincidentally, he also has had a cone species named in his honor. I did not know what the cone was, but I was sure of what it was not. So, it was shown to Dr. Edward J. Petuch, who described it in April, 1987 in *New Caribbean Molluscan Faunas*, page 74, plate 10, figures 12, 13 and 14.



OLIVER... ALL I HAVE IS CRAB UNDER GLASS.

## WATCHING YOU WATCHING ME

by Pam Scott

One of the benefits of living along the coast of southwest Florida is having the opportunity of observing the prolific marine life here in its natural state. There are few creatures, however, that are as uniquely fascinating as the octopi that sometimes turn up on the beach following a major storm or are occasionally found living in shallow waters. My husband and I still chuckle over our experiences with one of these little devils that we inadvertently brought home one winter afternoon.

We found him by accident while gathering tiny popcorn and grass shrimp in San Carlos Bay off Sanibel as food for several of the inhabitants of our small Gulf water aquarium. I had pulled an "empty" Lightning Whelk shell out of the water and put it into our bucket as a hideout for the various creatures we kept in our tank. On the drive home my husband happened to glance over at the bucket on the floor of our car and, dropping his jaw, swerved the car enough to splash water on my feet. "Well, I'll be damned, Pam!" he announced, "we've got an octopus in there!"

Sure enough, there was a little octopus, some 4" long, stem to stern, climbing idly along the edge of the pail. When we got home, we immediately put him in our tank along with the empty whelk, and contemplated a name for him, deciding finally on "Oliver." Oliver lived with us in apparent comfort for about two months, and to our knowledge, never once attempted to leave the tank, as we understand most captive octopi do.

Oliver was a shy creature who would make a dash for his whelk shell whenever he saw us approach. If we were to look at him for more than a few moments, he would snake out one of his tentacles to grab a coquina shell or a bit of broken clam shell and seal himself off, save for a tiny opening through which he'd glare at us suspiciously. His eyes were cat-like — round and rich golden, the pupil an angled slit. His eyes shut when he slept.

Oliver ate like a pig and seemed to be interested only in live food — coquinas, a beautiful blue-eyed calico scallop we had been enjoying, hermits and other small crabs we kept in the tank. He would reach out a tentacle and pull his intended meal into his shell; within thirty seconds, the bits he didn't like shot out like bullets. After the first two nights with us, Oliver had narrowed the aquarium population to himself and three tiny puffer fish wise enough to stay near the surface. I was soon making daily trips to the bay to hunt small crabs for him — no mean feat in the chilly February water. Oliver held us totally enthralled — we enjoyed watching him hunt and explore at night, but we were afraid he would wander outside the tank and die. To avoid that, we had to keep him content with enough to eat. If his daily ration of crabs was not there when he wanted them, Oliver would literally turn red with rage and make a terrible fuss, pumping his small body rapidly up and down as if doing push-ups. One day he even hid from us.

We looked everywhere for him — in the tank, outside the tank, under the furniture . . . we even looked suspiciously to our dog. But the following morning, there was Oliver, back in his shell, looking smug. We still do not know where he had been.

It got to be too much, eventually, to keep up with him, so we took Oliver and his whelk shell to a secluded bay and hid him among the sea grasses to live out his life on his own. We know that he is better off in his own environment, tending to his own needs, but we miss that little octopus at times. He was fun to have around! And sometimes I wonder if he misses us too.

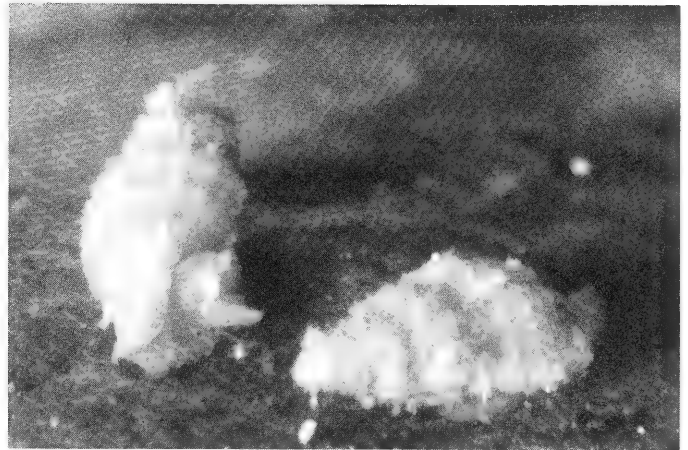


Photo by Peggy Williams

*Bailya parva* from Cayos Cochinos, Honduras.

## ON THE CARIBBEAN SHELL, *Bailya parva*

by Peggy Williams

Using Abbott's *American Seashells* or Warmke & Abbott's *Caribbean Seashells*, I find it difficult to differentiate between *Bailya parva* (C. B. Adams, 1850) and *Bailya intricata* (Dall, 1884). In fact, I suspected for some time that the two illustrations in *American Seashells* were the same species. I have found some shells that are strongly sculptured, and some that have brown bands, and also some that are strongly sculptured and have brown bands as well.

Now I discover that Dall himself decided the same thing. When he described *Phos intricatus*, in fact, he described it "with hesitation, since it seems extraordinary that so common a shell should not have been already described." Five years later he synonymized the name he created with that of Adams, having seen Adams' type, but he placed the shell in the genus *Phos*. The differences in the shell that do cause some confusion are summarized by Dall as follows:

"The Floridian specimens are short, compact, with very prickly sculpture, and of a white or muddy gray color. The Antillean specimens are more slender and elongated, less prickly, and of a clear white, or banded prettily with light yellow brown or purplish, in a spiral direction."

This is a fairly common Florida/Caribbean shell, found mostly in intertidal situations on the substrate under beige-colored rocks, but also in deeper water (I have it from 50' depth off west Florida). There are often two or more under the same rock. The cryptic coloring usually makes the shell hard to spot.

My thanks to Walter Sage for ferreting out the references and sending me copies.

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Dall, W. H. 1889. Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877-78) and in the Caribbean Sea (1879-80) by the U.S. Coast Survey Steamer "Blake." Bulletin of the Museum of Comparative Zoology, Vol. 18.

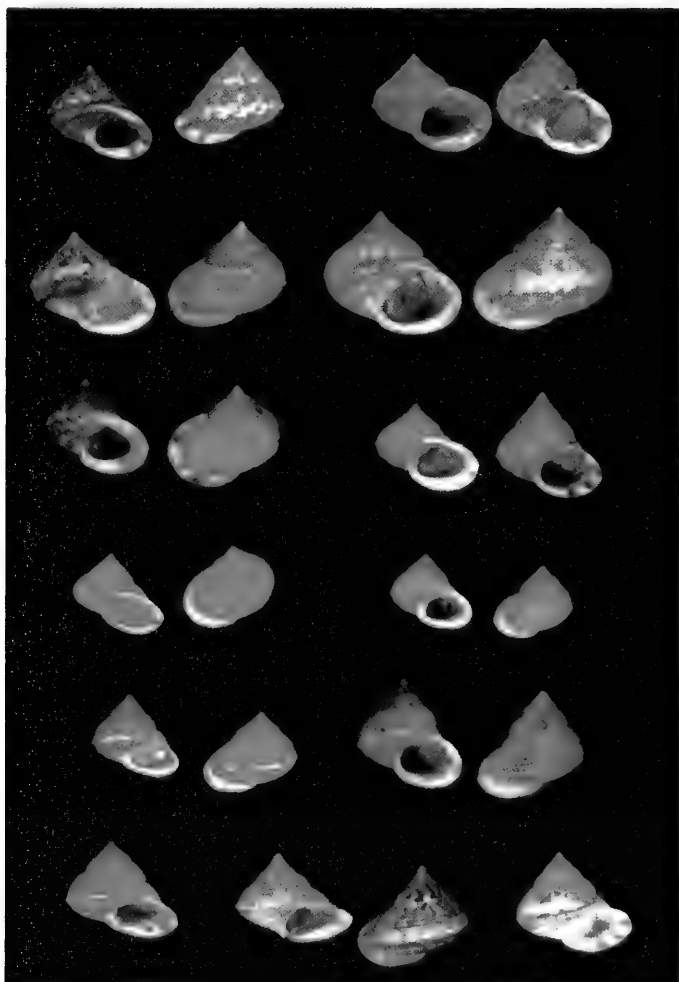


Figure I

Photos by Richard Goldberg

## A JAMAICAN HELICINID: ONE SPECIES OR SIX?

by Richard L. Goldberg

The Greater Antilles are known for their abundant and diverse land snail fauna. The Antillean island of Jamaica harbors a greater number of terrestrial species than is known from any comparable-sized land mass in the world. Five hundred species have been reported from Jamaica, and 85-90 percent of them are endemic. Approximately half of these known Jamaican terrestrials belong to just four operculate families.

Although many Jamaican species have very restricted ranges and isolated habitats, others are widespread throughout the island. A number of these wide-ranging species show considerable variation, and in some species the variation is so great that their varieties seem morphologically distinct.

*Eutrochatella pulchella* (Gray, 1824), the type species of the genus, in the operculate family Helicinidae, falls into this latter category. It exhibits extreme variation in various populations throughout the island. Over the past two years, I have collected *E. pulchella* at over 25 collecting stations, and examined another 30 lots at three major museums (Museum of Comparative Zoology, Harvard; American Museum of Natural History, New York; and the Academy of Natural Sciences, Philadelphia). Approximately six distinct varieties of *E. pulchella* can be sorted from these lots, based on three morphological characteristics which I will discuss later. Except in the case of one lot, I never found any mixing of these varieties actually living at the same collecting station.

The geology of Jamaica plays a large factor in the development of these isolated populations. The limestone-rich areas of middle and western Jamaica harbor a large proportion of the varieties. In the past, however, the Blue Mountains and in part the John Crow

Mountains are composed of an igneous and shale rock which makes up much of the core of Jamaica; these areas are less desirable habitats for land mollusks. *E. pulchella* and its related varieties thrive in the limestone-rich areas, but are notably absent from eastern high-elevation mountains. Populations are found in elevations under 3000 feet in the east though.

Environmental factors such as geology, vegetation and climate have a direct effect upon these populations. *E. pulchella* populations found on the rainy windward coast are very different from populations on the dry leeward coast or the cooler central highlands. Along the north shore I usually found *E. pulchella* in association with limestone outcroppings, but the distinct populations found around Mandeville, Balaclava and the Cockpit Country are almost always found crawling on rock in wet, mid-level rain forests. A correlation seems to exist between how distinct a variety is, and how isolated it is. This can be seen in Figure I, 4a and b from Negril, and 10a and b from the Cockpit Country. Distance in the case of the former, or a karst topography in the case of the latter effectively separate them from other populations, and this separation seems to have enabled them to evolve unique characteristics.

Three general features help distinguish these varieties at a glance: first, having either a sharp or a round peripheral carina; second, if sharp, the peripheral carina being either continuous or undulate/broken; and third, either having red markings or lacking any traces of red. In large series of populations, these three features are immediately evident. Visible under a hand lens are other less evident differentiating features like the number of spiral cords.

In Vendryes' 1899 faunal list of the land and freshwater shells of Jamaica, he listed four varieties of *E. pulchella*: one unnamed variety by Pfeiffer, and three named by C. B. Adams — *multicarinata* from Portland Parish, *labiosa* for varieties with excessively thickened lips, and *nobilis* from Westmoreland Parish. A subspecies described by Wood in 1828 as *scitula* is distinctly missing from Vendryes' list. H. B. Baker described a subspecies, *E. nobilis*

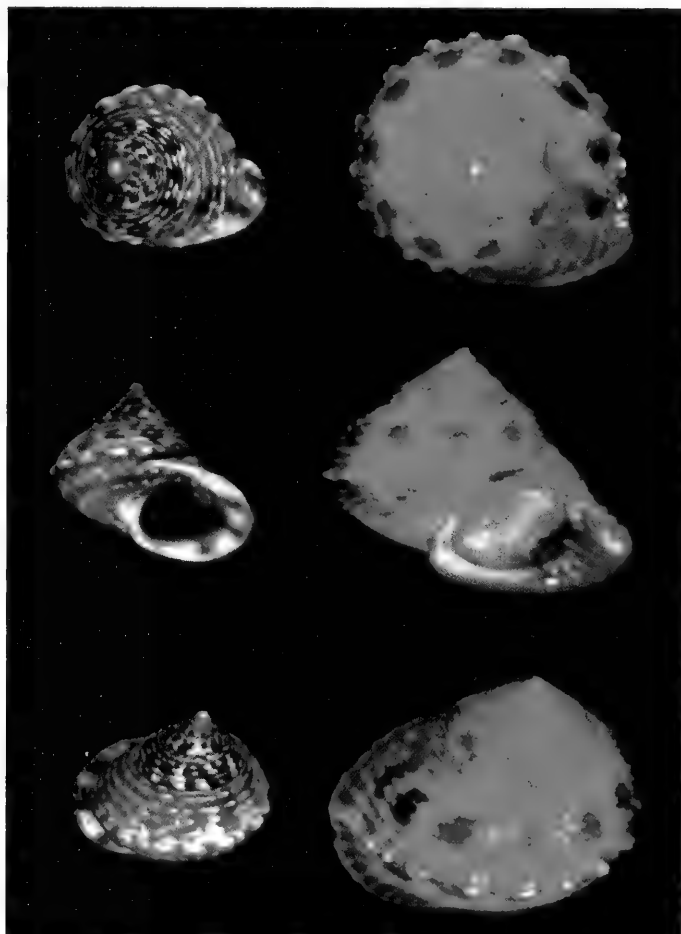


Figure II

*retreatensis* Baker, 1934, distinguished by its two orange-red bands. If *E. nobilis* is, in fact, only a subspecies of *E. pulchella*, it is the most distinct subspecies from the nominate form. As can be seen from illustration 4a and b, *E. nobilis* has a well-rounded periphery as opposed to the sharp carina of typical *E. pulchella*, and is always larger, averaging 12-15mm. The *nobilis* group is restricted to the western part of Westmoreland Parish.

Baker named two varieties of *E. pulchella* in 1934, *cathartensis* from Portland/St. Thomas Parish boundary, and *cavearum* from Manchester Parish. Baker also considered *E. grayana* (Pfeiffer, 1842) to be only a variety of *E. pulchella*. As you can see, there is much confusion and disagreement as to the status of these many varieties. On my most recent trip to Jamaica I found that certain northcentral populations of *E. pulchella* are somewhat similar to a beautiful dwarf variety of its beautiful relative *E. tankervillei* (Gray, 1824), found 7-10 miles south in the Cockpit Country (Figure II).

In Figure I, I have not attempted to employ variety or subspecies names in most cases. This illustration does, though, give an appreciation of the great variation found in *Eutrochatella pulchella*. The populations illustrated here were selected to show a scheme in the distribution of varieties. Among all the varieties, subspecies, and transitional populations, I can easily separate six distinct forms of *E. pulchella*. They include the Clark's Town (1a, b), Ulster (2b), Bogwalk (3a, b), Negril (4a, b), Unity Valley (7a, b), and Cockpit Country (10a, b) populations.

I do not suggest by these observations that these varieties should be given specific status, but I do hope to stimulate further thought and investigation of the radiating speciation of this and other such insular species. Ultimately, modern anatomical study methods and consultation of fossil records will have to be utilized to sort out these seemingly endless varieties. Until that time, good locality and habitat data will help in better understanding the distribution of these and other varieties of *Eutrochatella pulchella*.

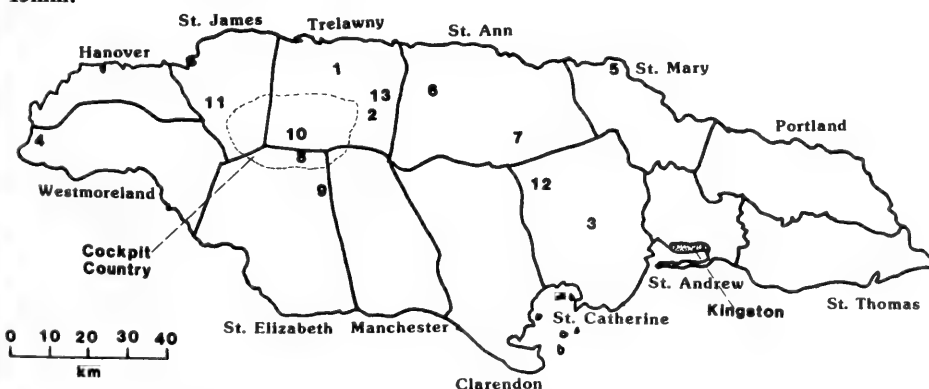
#### FIGURE I.

1a & b: One of the most beautiful forms of *E. pulchella*, limited to limestone cliffs in n. Trelawny Parish. Collected about two miles east of Clark's Town. The undulating peripheral carina is broken with red. 9mm (see Fig. II).

2a & b: The general shape of this Ulster Spring variety is very similar to #10, from the Cockpit Country, but has a broken carina marked in red. 2a is an odd, dead-collected specimen possibly transplanted by a bird or mongoose. Probably a transitional population between the n. Trelawny forms and isolated Cockpit Country forms. 11mm.

3a & b: This form, taken just south of Bogwalk, seems limited to the limestone areas in St. Catherine and part of Clarendon Parish. Distinguished by its less convex spire outline, and only a hint of red markings between the breaks in the carina. See #12. 10mm.

4a & b: This is *E. nobilis* taken two kilometers north of Negril in a dry limestone forest. The well-rounded peripheral carina and larger size distinguish it from typical *E. pulchella*. Some specimens have a more acute peripheral carina. It is limited to Westmoreland Parish. 13mm.



Map numbers correspond to the numbers on Figure I.

5a & b: This form, described by C. B. Adams as *labiosa*, was collected from the dry limestone cliffs at Dirlton. Most specimens from this locality exhibited a thickened lip, but I found the characteristic in odd specimens throughout Jamaica. Most shells had only a hint of red, but 5b has two distinct bands. The broken carina was more rounded than in other populations. 9mm.

6a & b: Snails from Trainline, about three miles south of Brown's Town, had two distinct forms. 6a predominated, with a lower spire, and opaque areas replaced red markings (visible on the peristome). A few odd specimens found here (6b) are identical to specimens from Ulster Spring (2b). Both exhibit a broken carina. Probably another transitional population.

7a & b: A dwarf population from Unity Valley on Mount Diablo, uniquely lacking any white markings other than faint low spiral cords. Very thin carina is unbroken to faintly broken. Some with a hint of suffuse red coloring (7b). I collected these in January, 1986, but road construction has destroyed the habitat. I assume this form has a wider range on Mount Diablo than the dry limestone cliffs that were blasted away. 8mm.

8a & b: Another dwarf form taken seven miles south of Quickstep on the rugged limestone cliffs along the south fringe of Cockpit Country. The convex outline is very similar to populations from the center of Cockpit Country (#10), but the carina varied from broken to unbroken. Some specimens showed only faint red below the carina. Interestingly enough, dwarf forms of other species were found here also. 7mm.

9a & b: Found at three localities around Balaclava, probably another transition between more northerly forms and the isolated Cockpit form (#10). Specimens vary considerably within individual populations. Breaks in the carina are much more widely spaced than in other populations, but some specimens have no breaks at all. Some have a thin carina, while others are thick and corded. Most had no red markings, but a few showed a hint of red between the breaks. 8mm.

10a & b: I found this form, restricted to the remote Cockpit Country, along a five mile stretch of trail in the center of the region. Prominent carina is unbroken. The convex outline, larger size and lack of red markings are constant. 10mm.

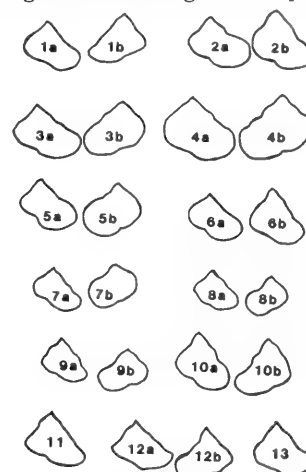
11: From Mount Horeb in the western fringe of the Cockpit Country. Very similar to the isolated Cockpit form, it had 2-3 red bands with a few widely spaced carina breaks. 10mm.

12a & b: Very similar to 3, this Lluidas Vale population has flatter-sided whorls, more acute spire angle. Coloring and sculpture are identical to specimens from Bogwalk (#3). 9mm.

13: From the Alps. Similar to varieties from Ulster (2b), and Trainline (6b). As more populations are discovered, these transitional forms should link wide-ranging varieties.

#### FIGURE II

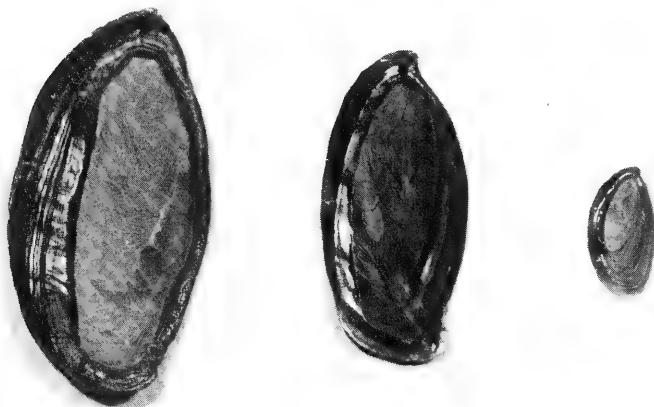
*E. pulchella* from Clark's Town, and *E. tankervillei* (right) from the Cockpit Country, showing the undulating/broken peripheral carina in both.



KEY TO FIGURE I



## MORE CONFUSION — BUSYCON UPDATE



A series of opercula from *Busycon contrarium*, left to right: from a very senile animal, a young adult and a juvenile.

### RELATIVE AGE IN BUSYCON

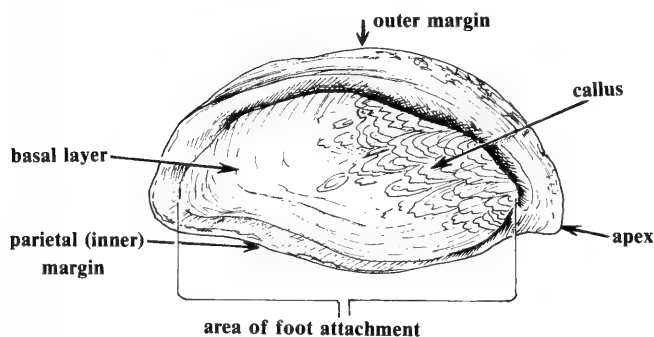
by John Timmerman

Unlike such mollusks as *Strombus*, *Busycon* don't develop flared lips or other definite indicators of maturity. Nor is shell size a reliable indicator in *Busycon*. The sexes vary in size, the females being larger than the males, so a given specimen may be half the size of another, and yet display the characteristics of a fully adult shell.

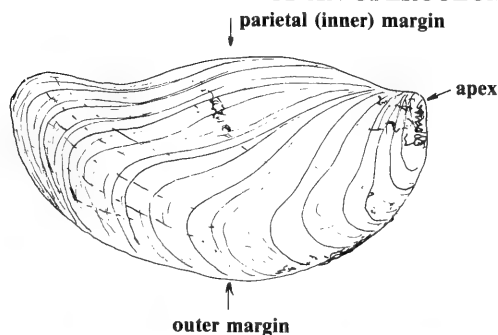
However, the *Busycon* shell does thicken and often loses the juvenile coloring when full size is reached. The thickening process may continue to the extent that a grossly heavy or senile shell results. In addition to the thickening of the shell, growth lines tend to become closer together as the animal's growth slows. This can be observed on the last one to three inches of the body whorl. I've noticed a third indication of age that lends support to these observations.

### INTERIOR STRUCTURES OF AN OPERCULUM

*Busycon contrarium* (Conrad, 1840)



### EXTERIOR STRUCTURE OF AN OPERCULUM



By examining the interior attachment area of the operculum I can determine relative age of a given shell. The area of attachment to the foot has a mustard brown callus that overlays the smooth, dark brown of the operculum. As the animal ages, more of this callus is produced, gradually covering most of the brown layer. In very young animals, such callusing is often nonexistent, while in senile individuals the callus is very thick and rough. By observing the operculum alone, I can usually make an accurate determination of the relative age of the shell it came from. This is a rough method for estimating age, but it further helps to clarify relative age in this group of mollusks so variable in mature size. This technique is limited to the *Busycon carica* (Gmelin, 1791) and *Busycon perversum* (Linné, 1758) — *Busycon contrarium* (Conrad, 1840) complex, the heavy-shelled species.



*Busycon laeostomum* Kent, 1982. Paratype. AMNH #206091. 220mm. Trapped at 10-15 meters off Stone Harbor, New Jersey, 1979.

### LEFTHANDED RIGHTHANDED WHELKS?

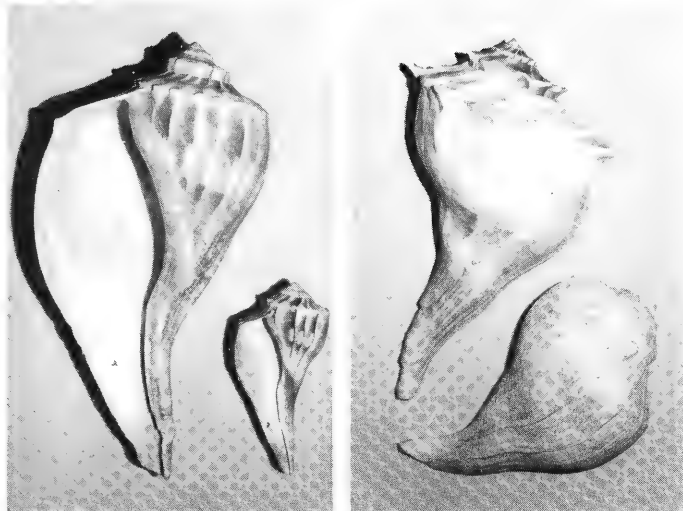
There's a population of large, pale sinistral whelks that inhabits offshore waters between southern New Jersey and northern Virginia. They have been called sinistral *Busycon carica* (Gmelin, 1791) or a form of *B. contrarium* (Conrad, 1840), but they also have been given a name of their own, *Busycon laeostomum* Kent, 1982.<sup>1</sup>

The author observes that these sinistral shells have periostracum characteristic of *B. contrarium*, and that the animal is black, which is also true of the Lightning Whelk. On the other hand, it is much more like *B. carica* in shape and curvature of the columella. *Busycon carica*, however, is a gray animal, and its shell has never been observed in the white to peach tone characteristic of this offshore population, while the latter has never appeared with the deep orange mouth common to *B. carica*. Other, less conclusive differences are mentioned as well.

A third *Busycon* species in the area already inhabited by two other, closely related, immensely variable ones seems unlikely, so the description doesn't seem to give us any answers, but it does add some interesting information to the puzzle of the *Busycon*.

Bretton W. Kent. 1982. An overlooked *Busycon* Whelk (Melongenidae) from the eastern United States. *The Nautilus*, Vol. 96(3), pp. 99-104.

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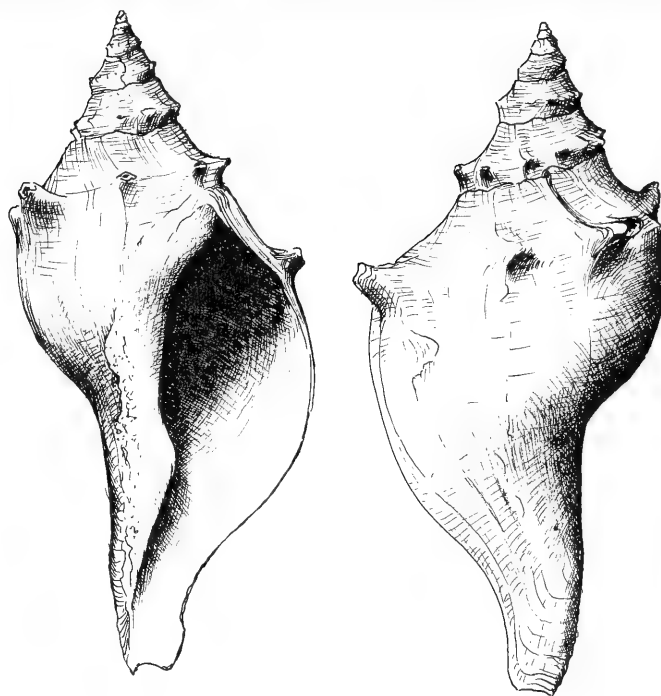


*Busycon contrarium* (Conrad, 1840) variants, showing extreme variation within this species. The 240mm specimen, left, is the very spiny variant referred to as *Busycon sinistrum* (Hollister, 1958) from Marco Island. On the right is the knobless variant called *Busycon aspinosum* (Hollister, 1958), 187mm, most likely from Florida.

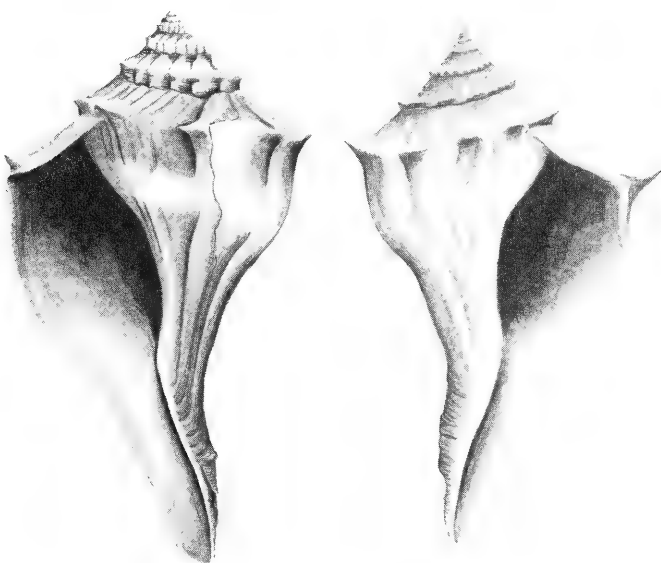
*Busycon contrarium* (Conrad, 1840) collected at Portsmouth island, North Carolina after Hurricane Gloria in 1985. This thin-shelled variant, common to the area, has closely-spaced brown axial color streaks and an apricot-to-salmon aperture in adults. These are quite different from shells found in back bay areas, and are just another possibility in this immensely variable shell. 107mm.



**Multi-Knobbed Busycons:** Busycons sometimes produce extra rows of knobs. On the left is a 287mm *Busycon perversum pulleyi* (Hollister, 1958) from the Gulf of Campeche, Mexico (American Museum of Natural History). Single-knobbed in the juvenile stage, it later added the two extra rows present in the last  $1\frac{3}{4}$  whorls. On the right is a much less common phenomenon, 129mm sub-fossil *Busycon carica* (Gmelin, 1791) collected by Alta Van Landingham on Portsmouth Island in 1975 and actually born with three rows of equal-sized knobs. *Busycon perversum pulleyi* may also be born with multiple rows of knobs. In both of the shells pictured, the additional rows of knobs are very much on the shoulder of the whorl. In some cases, however, the spiral lirae between the shoulder and the spire may strengthen to the point of producing a second, weak row of knobs — see the specimen of *Busycon sinistrum* (Hollister, 1958) below. Multiple-knobbed whelks don't appear to represent a given population, but are a result of a widespread recessive trait. Wherever the knobbed whelk occurs, the possibility for multiple knobs exists. (JT)



Pen-and-ink drawing of a high-spired variant, knobbed whelk, *Busycon carica* (Gmelin, 1791). (See COA Bulletin, March 1987)

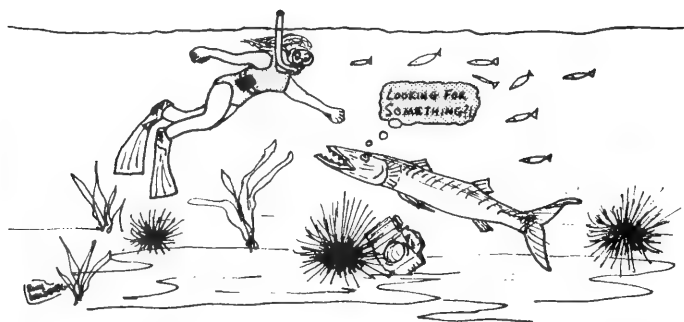


All photos and drawings by John Timmerman

## STATE BUSYCONS

In 1978, the Georgia Shell Club adopted *Busycon carica eliceans* Montfort, 1810 as the official club shell. They concluded that it would make a good State Shell candidate as well, so in 1984 Kay Reissing of the Georgia Shell Club contacted the State House of Representatives to initiate the selection process. The heavy, contorted variant of *Busycon carica* (Gmelin, 1791) ran into a snag though. It seems that the experts weren't at all sure that it was a valid subspecies, so *Busycon carica* itself has been chosen as the Georgia State Shell.

*Busycon perversum pulleyi* Hollister, 1958, had a much smoother course to State Shellhood in Texas. Action on the adoption of this whelk as State Shell of Texas, begun in May, 1986 in Brazoria County, Texas under the auspices of the local museum and the Brazoria County Sea Shell Searchers, concluded with the governor's signature in April, 1987.



## FISH STORY

by Kathy Krattli

On the second full day of my two week vacation on Grand Bahama Island, my friend Pat drove us out to the east end of Fortune Beach to snorkel and look for shells. This almost-deserted area proved to be a delightful place to snorkel once we got out past the rocks. The tide was on its way out and it was a beautiful, sunny, calm day. I was anxious to try out my new little 35mm Nikon Action Touch camera.

My first subject was a beautiful little Flamingo Tongue, *Cyphoma gibbosum*, on a purple sponge. I thought they just lived on sea fans! The yellow and purple soft corals, waving gently with the current were just beautiful! Large sea urchins were everywhere, and the small colorful fish that are always a joy to watch. In this environment, I totally lose myself, as well as all track of time and direction. I was snapping pictures at intervals, each time replacing my camera in its case strapped to my belt. Then, one time I reached for my camera in its case — to snap a small barracuda curiously watching me — and it wasn't there! The velcro closure hadn't held, and my camera had fallen out! But where and when? I was suddenly sure the barracuda knew. I hurriedly offered a deal to Neptune . . . Help me find my camera and I'd return the little Flamingo Tongue to its purple sponge!

I hunted for about two hours, trying to retrace the areas where I might have dropped the camera. I knew I had never been out deeper than six feet. I didn't find my camera, but I found a lot of neat things that would have made good pictures! I saw a steel-blue ray with a fish almost riding on its back, and a Tulip having a clam for lunch. I also found a *Marginella roosevelti* that is supposed to be pretty rare. The animal is red with white splotchy markings, a pretty little thing.

After being in the water for about four hours (my mask felt like it was growing to my face!) and being in the sun at the hottest time of the day, we called the search off and went home. That night I didn't sleep much. I had visions of my camera being hauled down to the bottom of an octopus hole. And I wondered, if I did find it the next day, would it still work?

The next day we were back out at Fortune Beach, this time with two more friends to help in the search. We criss-crossed the whole area with no luck, but what I found in the way of shells almost made losing my camera worthwhile. Almost. Among these were: three perfect Angular Tritons, *Cymatium femorale* at the entrance to an octopus hole, nicely cleaned out for me; three Caribbean Lace Murexes, *Chicoreus florifer*, which differ a bit in color and form from the Florida ones; and, along with a couple of ordinary Hawk Wing Conchs, *Strombus raninus*, I found a pure orange one!

After four hours, again in the hottest part of the day, we decided we weren't going to find my camera, and we gave up. Before we left, I went to check for shells out on the rock jetty, which was now completely exposed. I found nothing at all, and started snorkeling in the shallow water out beyond it. I was tired and still feeling a bit depressed about my lost camera when I almost bumped into my friend, the small barracuda. I knew it was the same one because of that all-knowing gleam in his eye! I was still unreasonably convinced that he knew where my camera was, and I guess he didn't like my

attitude, for he quickly swam off. I started in the opposite direction, when suddenly, right in front of me, was my biggest find of the whole trip — my camera, with a big sea urchin sitting on it! Now that would have made a great picture! It had drifted about fifty feet from where I had been the day before. And the most amazing thing was that, after being in the ocean for 24 hours, it still worked! Had that barracuda been keeping an eye on it the whole time? I only regretted that I never did get his picture!

## BEST OF THE NEWSLETTERS

This time we present a humorous little piece by a prolific contributor, Bob Lipe, from the June 1987 issue of the St. Petersburg Shell Club *Tidelines* which conveys and lightens the frustrations many novices feel when encountering shell terminology. Congratulations, Bob! Keep up your excellent contributions.

## CONCHOLOGICAL CONFUSION

by Bob Lipe

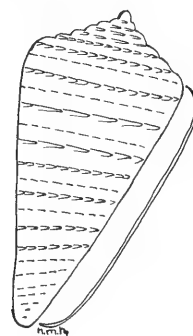
Many times, whenever interested persons ask questions about the parts of the shell or the animal within the shell. I try to answer their questions. But look, folks, I don't know it all, and I can see how you can become confused.

Now the edge of the shell is called a lip, and yet it isn't on a mouth, or is it? The opening of the shell is called the mouth at times, but the mouth on the animal is called the proboscis, which I used to think was a nose. But the nose on the snail is called the siphon, which is the way I get gas out of my car for my lawnmower. The part the shell crawls on is called the foot, or so they tell me. That's why the snail is called a gastropod, which means "stomach-foot." When a snail eats a large meal, he might say, "I can't eat any dessert because my foot's full."

The siphon or nose extends through and out of the siphonal canal, which I have heard called the tail end of the shell — wrong end, my friend! The other end is called the tip, spire, rear, top, etc. It's the end where the shell started its growth. The little tip is called the nucleus or protoconch. Each time the snail builds a complete circle of shell, it's called a whorl. The place where the whorls are joined is called the suture. To help you remember, let's say the whorls were separated and the doctor had to sew them up. What would he call his sewing? You guessed it, a suture. The shell is constructed by something called a mantle (no fireplaces included). The mantle is a thin piece of fleshy material which extends to the edge of the shell, or can cover the entire shell in some families.

The operculum is an item that the snail uses to close up the entrance of the shell. It's called a door, but has no hinges. The bivalves or clams have the hinges, but have no doors; what a mess! The snails have teeth in the end of their proboscis (that's their mouth, not their nose). The teeth are called radula (no, not Dracula) and they are lined up on what is called a ribbon, by the hundreds, and when some wear down or are lost, others take their place. The proboscis can extend to cover twice the length of the shell. The snail can stay home and send his mouth out to eat. Some snails have the ability of knocking other shells off their back with their proboscis. Wow! Extendo mouth!

I don't know if I have this all figured out. Have you?



## THE BROWARD SHELL CLUB GOES TO FIJI

by Josy Wiener

After working very hard, researching thoroughly, and anxiously checking with the State Department about the political climate of the government of Fiji, our Broward Shell Club field trip chairman, Kim Chandler, led twenty-nine of us (including three members of the Central Florida Shell Club) on our long awaited trip to Naigani Island, Fiji.

We departed on August 4th, and spent two nights at the very elegant, old world-style Royal Hawaiian Hotel in Honolulu, shopping, sightseeing — Ben and I got in a visit to the Bishop Museum. The highlight of our stay was attending a meeting of the Hawaiian Malacological Society. There we gave a talk on COA, showed slides of the 1986 Ft. Lauderdale Convention and met some wonderful, warm and gracious people.

On Friday, August 7, very early, we left Hawaii for Nadi (pronounced Nandi), where customs thoroughly searched our luggage. Several nuisance-type luggage searches later — remember those headlines about the unrest in Fiji! — we were on a 35-minute flight to Suva where we boarded a bus for the next leg of our journey. Two hours later, after a hair-raising ride over narrow, unpaved roads marked by potholes and rickety wooden bridges, we reached a little jetty where launches transported us to our mystery island, Naigani.

After another seemingly hazardous ride, this time through choppy waters, outgoing tide, coral reefs and diesel fumes, we reached Naigani where we were welcomed by the beat of drums and the entire staff of our hotel. To keep our feet dry, we were each carried ashore! At last, our luscious tropical island!

When Jean Redding found the first *Conus marmoreus*, eager hands tried to grab and admire it, but Jean, expert and cautious sheller, cautioned us that all cones were to be handled with the long handled tongs we had brought.

Our living quarters were a big surprise: sheer homey luxury! Spacious duplexes with shared living-dining areas and complete kitchens, and even a shell-cleaning station out back. Maids did our laundry and changed our linen daily. Three good, ample meals a day were served, featuring fresh fruits and vegetables and a variety of meats and fish. Our existence from then on consisted of beach-combing, wading, snorkeling and rock-turning.

Saturday, August 9th, we got up rather early and started shell-ing, turning rocks, uncovering cones and cowries. We worked our way toward a fantastic low tide sandbar which easily pleased thirty shellers in spite of a rather cold wind and rain — olives, terebras, miters, one *Cassis cornutus* and naturally cones — sheer delight! As the tide turned, we made our way back and started to cook and clean shells. The cones, miters and terebras were a losing proposition, so we just ziplock-bagged them, sprinkled on some baking soda and anticipated the fun of all the luggage inspections on the return trip. We tried leaving them out for the ants to clean, but three sows and twenty-two piglets nixed that idea, digging up everything, including a very dark *bulbosa*-like olive we hated to lose.

After dinner the native staff presented us with a welcome show and the Kava ceremony. Now Kava is not a coffee, but a mud-like, mud-tasting concoction. Fortunately, neither Ben nor I was picked to taste it, or we would have been forced to offend our hosts.

On Monday, 22 brave souls went on a day trip to a different island, but eight of us remembered the diesel fumes and stayed behind to turn rocks and wade. Ben went in search of *Cypraea*, his favorite pastime given a rocky habitat, and was joined by two chatty natives. One man reminisced about his grandfather, recalling the days when their people practiced cannibalism, whereupon Ben told him, "What do you look at me for? I am too small for you." "We'll eat you for dessert," they told him.

The next day we took a launch and ample picnic supplies around the island to explore a pretty reef. We bagged coral, some starfish, basket stars and crown-of-thorns, and naturally the blue starfish, which fascinated all of us. Also more cones, *Cypraea* and *Trochus*.

Lunch was delicious, snorkeling very good.

On Wednesday, we went across the island to visit the native village — about 1½ miles through lush jungle scenery. The natives were waiting for us, their wares all spread out — woven mats and shells. Fran Thorpe got a nice *Cassis*, Alyce Wassell, with Ben bargaining for her, bought a *Charonia tritonis*. I finally broke down and bought for \$5 (down from \$10) a five pound, 10" *Chama* which I wasn't sure I could get home. That night, after dinner, the natives performed again and then we all joined and danced with them. It really was a fun night.

On Saturday, August 15th, David Rutledge, President of the Fiji Shell Club, arrived to judge our shells. Olga Jacobucin won with an *Epitonium*. Then David showed us some absolutely beautiful shells from his collection and also brought two *Cypraea aurantium* for us to drool over. That night we had a native costume party with David judging. Ben and I came in second and were awarded a *Murex ramosus*.

Monday, some of us visited an old native village, before packing to leave. Fitting all our treasures in was a big job. That night after dinner, the native staff gave a farewell party for us, and we serenaded them all with a song composed by Kim and her sister Shirley.

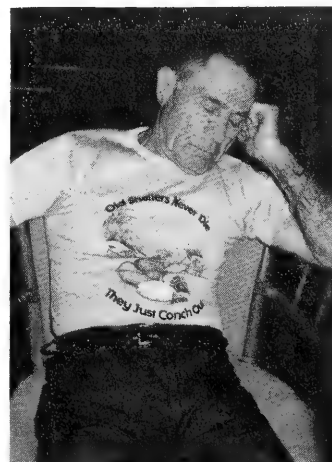
Early Tuesday, after the luggage was loaded, we boarded our launches, or should I say were carried aboard, so as not to get our travelling shoes wet. As usual, the seas were choppy and we also had a bit of rain, a lovely rainbow and diesel fumes blowing our way. But we got back to the little jetty with the sun shining. While the luggage was being loaded into the bus, Corinne Edwards and a few others went down to the stones and rocks to look for shells — the spot provided a real bonanza — more *Mitras*, *Murex troscheli*, *Planaxis* and more.

Back in Suva, Ben and I bought post cards and went off to the post office to mail them. But we didn't have enough Fijian money — we were 40 cents short. Would you believe it, the kindhearted postal worker waved our offer of American dollars aside. Can you imagine this happening in a U.S. post office?

Then off to the stalls near the waterfront, where we shopped five years earlier and where one of the men recognized Ben! We bought tapa cloth bags — tapa cloth is made of a tree bark and hand painted in black and brown colors in lovely patterns — and met some of our fellow shellers bargaining for specimen shells. A perfect *Charonia tritonis* attracted us and we haggled the price down from \$100 to \$50 but the thought of having to give it up at US customs was unbearable so we left it behind. A *Cypraea aurantium* with a big flaw for \$700 was easy to pass up, and Ben was offered a *Murex troscheli* for \$1100, then \$1050. He told them we get shells cheaper in the U.S.



Buying shells at native village



Ben Wiener — Journey's End.



Finally met at the Travellodge for a very interesting sightseeing tour of Suva. We saw a ten-foot *Nautilus pompilius* but were not allowed to take photos, because the park was adjacent to a government residence and the soldiers waved us on.

Away to the airport to give the officials several good whiffs of the contents of our luggage, and we were off for home. Kim Chandler had done a fantastic job on this, her first overseas venture.

One sad note: Ruth Chesler, who had remained behind for a longer stay in Fiji with Jean Redding, passed away in a Suva hospital on August 26th. We will always remember her as our friend and travel companion, and the chairman of the 1986 COA convention in Ft. Lauderdale.

## ANOTHER SHELLING STORY:

### SWEET WATER SNAILS IN TOBAGO

by Peggy Williams

On a recent trip to Tobago, Charlotte Lloyd, her son Brian and I found a large freshwater — "sweet water" as it's called there — snail. We showed it to our hotel's manageress, who asked in amazement, "How did you ever know where to look?"

Here's how:

Charlotte and I got hooked on snail hunting in the rain forest of Puerto Rico, so we naturally stopped at roadsides on Tobago to look for snails in the forest and freshwater environments. However, we found little in our early efforts. One day, at the far end of the island, we visited Jane Boyle, a diver who collects shells and has written a checklist of marine shells of Tobago. She also had some land snails, including a huge white one of 3-4 inches in length and this large freshwater snail similar to our Apple Snails in Florida. We knew immediately that it was a freshwater snail, and, indeed, had seen one at the dive shop on our end of the island and identified it as freshwater. Of course the dive shop clerk had no idea where it had been found. Jane, however, did know and told us just where to look.

The following day we eagerly followed Jane's directions to the proper stream. There we found, on the banks of the stream, a large pile of these snails that had been someone's picnic. Even the operculums were there and intact. However, the beautiful black velvety periostracum of Jane's specimen had begun to weather and peel off of these shells, and we still hoped for live, fresh specimens. But we didn't find any, though we searched several streams in the hot mid-day sun. We did make friends with some fishermen (the streams were near the Atlantic coast) and saw a bag full of "Cockroaches" — Chitons — that a woman had collected for sale — they're eaten raw and said to make a man virile — but that's another story.

On our next-to-last day we rented motor scooters late in the day and rode off along back roads hunting land snails. We followed one road bearing a sign saying a culvert was out down the way. It was a quiet, lovely road and we enjoyed it, stopping for snails and to photograph some goats with their kids. A vanload of people passed us with friendly waves, and when we got to the culvert we found that they had stopped and, seeing a large fish in the tiny stream, were trying to net it with a cast net. There were several men and women, a couple of children, and a tiny baby asleep on the seat of the open van. They were a typical racial mix of negro and East Indian (Hindu), with perhaps a little American Indian thrown in, hence they were shorter than the usual run of Tobagoans; and they were just as friendly as everyone else on that delightful island.

As we talked, Charlotte found one of the freshwater snails on the bank, and we asked if they had seen any there. Everyone started looking vaguely around, but there were none in the immediate vicinity. Finally, one of the men gave us explicit instructions: Go to the main highway and take the first right turn. You will see a gate to a pasture. Park the scooters and go over the gate. No one will mind

if you walk over the land! Walk across the pasture and you'll come to a "branch" (stream) just like this one. The snails are there. He added proudly that not everyone knows where to find these snails, but he guaranteed we'd find them there.

The search for land snails immediately abandoned, we hurried to follow directions, racing the fast-falling dusk. We did find a gate and walked a way, but we decided we had the wrong one. We found the right place just as darkness fell and determined to go back the next day.



It was wet in the morning, but did not actually rain on us, and as the day progressed the sky cleared for a beautiful last day of our stay. We went again to the gate, climbed over it and, carefully avoiding cow patties, made our way to the tiny stream where Charlotte immediately found a live snail in the now-muddy water. Moving downstream, fighting brambles and slipping on the muddy banks, we found more, and in places where there was a wide muddy shore where cows waded into the

water, the snails were everywhere! We found many dead ones on the banks too, half-buried in dredged-up river bottom. The live ones, however, were emerging from the mud and we figured they had probably been buried for months, waiting for the first rain! We found only a few large live ones and also took a very few of the smaller juveniles, but we filled our bags with dead clean snails with the operculums still in place — they must have found the drought too long and desiccated.

Back at the hotel, we asked our amazed manageress to freeze the live snails for us, and they were just right for pulling out of the animal when I finally got home to Florida.

## WHEN IN ROME

by Deena Martin

I had a warm and wonderful experience in May on a trip to Italy with Adelphi University. I had written to Kety Nicolay, the editor of *La Conchiglia*, to say that I would be in Rome. Well, you have never seen such a welcome. Kety and her husband Mario were the most gracious hosts ever. I was invited to their home where I had the joy of seeing their huge, very beautiful collection of shells. Many of them were extra large, and most of them were self-collected from all over the world. What a breathtaking afternoon! Then came tea in their very beautiful home. And . . . an invitation to all of you to let them know when you will be in Rome, and how much they would enjoy meeting you. They asked why so few of us subscribe to *La Conchiglia*, and I said I'd ask, because I, for one, wouldn't miss it. I guess the most frequent answer is that there is no follow-up on expired subscriptions. Anyway, then I had a tour of a beautiful rose garden and a very special view of the dome of St. Peters from a keyhole in a door put up to frame the dome by the Knights of Malta. These were sights we would not ever see with a tour. How kind they were. I will always remember my visit with pleasure. Remember, when in Rome, let Kety Nicolay know!

From *Irradians*, Publication of the Long Island Shell Club.

## MORRIS CARL JACOBSON SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club this year will offer one or more scholarship awards of up to \$1500 for support of graduate research in molluscan biology. For more information, write Dr. K. B. Clark, Chairman of Scholarship Awards, Astronaut Trail Shell Club of Brevard, Inc., P.O. Box 360515, Melbourne, FL 32936-0515.

## FEEDING A HUNGRY COWRIE

by Alta Van Landingham

A few years ago, while shelling in the Florida Keys, my husband Van found a *Cypraea cervus* Linné 1771, the Atlantic Deer Cowrie, in the bulla stage, about one inch long. We then had many salt water aquaria and were interested in as many live, immature species as we could find for observation.

Van also collected from the area several algae-covered rocks, as, at the time, all information indicated that cowries are vegetarians. After settling the cowrie in our aquarium in Ocracoke, North Carolina, I collected several species of algae from that area to see if his appetite would go for N.C. as well as Florida algae.

I had put the cowrie in an aquarium with some tiny, quarter-inch *Busycon carica* (Gmelin, 1791) babies. The *Busycon* were being fed on a diet of Atlantic Coquinas *Donax variabilis* (Say, 1822) which were very plentiful in our area, and easy for the juvenile *Busycon* to open.

The cowrie was very active, moving all around the aquarium, crawling on and under the rocks, but I never observed him feeding on algae. I spent hours observing, and was surprised to see him eating the coquinas that the young *Busycon* had opened. This feeding habit continued.

The cowrie grew at an amazing rate, or so it seemed to us. We could find no information about the growth rate or eating habits, actually very little at all about the living animal. At the end of a year the shell size had increased to six and a half inches. The only comparison we had was the juvenile *Busycon carica* which we had been raising. The *Busycon* were only seven to eight inches at the end of six years, and here was this cowrie over six inches in the first year!

As the cowrie grew, he was transferred to a larger aquarium along with the original rocks from his habitat in the Florida Keys. I continued to keep him well supplied with different types of algae, and while he did eventually munch on the algae, he definitely preferred coquinas. Since he couldn't open the coquinas himself, I froze them, and then when I put them into the aquarium, they would open as they thawed, and he would move in on them! By the time the cowrie was four inches long, he was eating about a pint of coquinas each day.

The cowrie shell was very beautiful, with dark bluish tints and ocellated spots similar to *Cypraea zebra* Linné, 1758. It lived in our aquarium for a bit over one year, and at the time of death was not fully mature. I have no idea as to the cause of death, although someone suggested that it may have been acute indigestion from eating so many coquinas!

## LYNX JINX

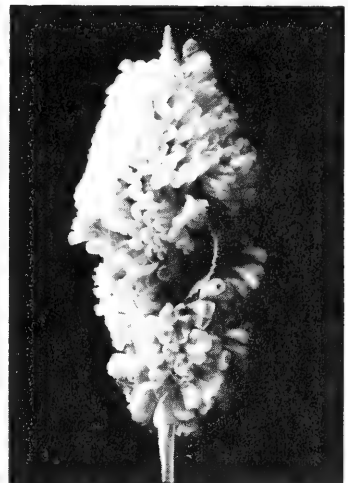
by Rich Kelly

One of the supervisors (luckily not mine) in my office took quite an interest in shells. He seemed so sincere that I decided to start him out on a collection. I gave him a self-collected *Argopecten i. irradians*, full data and even a zip lock.

This person is seriously involved with the stock market. When he got the shell, he put it on his desk and his stocks went up and up. After a while the shell was getting in his way, so he put it in his desk drawer. His stocks went down and down. One day he noticed the shell in his drawer and put it back on top of his desk in hopes of changing his luck. His stocks skyrocketed. Then the occasion of a business trip came along and he just had to take the shell with him. He put it in his pants pocket, forgot about it, and accidentally leaned against his desk. The shell broke into little pieces. His stocks plummeted.

Now in total panic, he begged me for another lucky shell. I gave him an indestructible *Cypraea lynx* from Australia. He thought it was very attractive, put it on his desk, and lost \$1,000 in three days. There's no moral or punch line. This is a true story.

From *Irradians*, publication of the Long Island Shell Club.



Photos by Beatrice Winner

*Fusinus salisburyi* Fulton, 1930. With egg capsules.

### Bea's Babies:

*Fusinus salisburyi* Fulton, 1930

by Beatrice Winner

This specimen of *Fusinus salisburyi* was taken by a prawn trawler at 120 fathoms, northeast of Lady Musgrave Island in the lower end of the Capricorn Channel, Queensland, Australia. The trawler pulled in three specimens with egg cases attached, one of which is pictured here. The animal was still in the egg-covered shell when I received it.

The buff egg capsules measure 14mm. in length and 7.5mm at their widest part. Each one was attached by its base to the shell. There has been no report that a planktonic larva exists.

This uncommon fusinid may reach 370mm. The fusinids, in the family Fascioliariidae, belong to the order Neogastropoda, the most highly advanced order, systematically. Its members are gonocharistic, that is, the sexes are separate.

## OLD MEMBERS, NEW MEMBERS

"Welcome back!" says the note attached to the copy of *AMERICAN CONCHOLOGIST* that arrived yesterday. Hadn't been aware that I'd been away until I checked my shelves and find I'm missing so many issues. But in one of those back issues I came upon a plea for words on "How I became a shell collector." Here:

Long, long ago I marveled at the pretty things in the cabinet of my neighbor, Imogene Robertson. I'm sure that she became weary of my asking how she painted them, and "What's this? And that?" So she led me to her back yard to tip over boards to display the snails beneath. Assuring me that they had names, even as I did, she loaned me a book, and then books, and, and, and. Much later I was to inherit her position as curator of mollusks at the Buffalo Museum of Science, and yes, to help organize COA.

Later, residence in the Florida Keys and learning to snorkel brought about my modest shell business; I have my sales sheet at hand, and it really was modest.

And now, here am I in the far west, living in a rest home among a hundred-plus neighbors who don't know a snail from a scuppernong. I have a few shells on hand, too few to call a collection, which I display to them on occasion, due to the generosity of my old friend from the Keys, Roberta Robertson. And sometimes I hear from other old friends — Alan. Tucker. Jean.

Setting down these words has made me realize how much I miss you all. If and when any of you come west (Beaverton, Oregon is a suburb of Portland and I'm in the phone book) please stop in; it will do me so much good to chat. Adios!

Margaret Teskey  
5450 SW Erickson A-321  
Beaverton, OR 97005



Photos by Vokes, Hoerle

Fossil Mollusks with original pattern exposed by ultra violet light: top row, from left — a,b) *Conus aneuretos* Hoerle, 1976,  $\times 2$ ; c) *C. isomitratus* Dall, 1896,  $\times 1\frac{1}{2}$ ; d) *C. chipolanus* Dall, 1896,  $\times 1\frac{1}{2}$ ; e,f) *C. sulculus* Dall, 1896,  $\times 1\frac{1}{2}$ ; all from Chipola Formation, Florida. Bottom row, from left: g) *Acrosterigma dalli* (Heilprin, 1887), a cockle from the Caloosahatchee Formation, Florida,  $\times 1$ ; and *Orthaulax gabbi*, Dall, 1890, a Chipola Formation strombid.

#### LETTERS:

We certainly enjoyed the June **Bulletin** — oops, **AMERICAN CONCHOLOGIST** — and I wanted to make a few comments on the article on fluorescence in Pliocene fossils.

This is a genuine case of serendipity. Normally, fossils which have just been removed from the ground will **not** fluoresce — only long exposure to the sun or soaking in sodium hypochlorite (laundry bleach) will do the trick. If the author had actually collected at the Sarasota pit, the specimens would not have done anything. But their exposure to the sun while they had been lying out in the woman's garden is what brought out the fluorescent property. The best naturally-occurring fluorescent fossils we ever found were those at Structure 65-D on the Kissimmee River (Canal) that had been spread out by the construction and left to lie in the sun for months. This was how we originally learned to artificially induce the same effect.

The author asks whether this is common to all Pliocene fossils. In fact, it can be induced in any fossil that has not been chemically transformed into calcite. We have been able to induce (by bleach) color in many Eocene shells, and even a few Cretaceous ones. If the reader is interested in seeing other examples, may I suggest:

Hoerle, S. E., 1976, The genus *Conus* (Mollusca: Gastropoda) from the Alum Bluff Group of northwestern Florida: *Tulane Stud. Geol. Paleont.*, v. 12, no. 1, pp. 1-31. (Lower Miocene cones in "living" color.)

Vokes, H. E., and E. H. Vokes, 1968, Variation in the genus *Orthaulax* (Mollusca: Gastropoda): *Tulane Stud. Geol.*, v. 6, no. 2, pp. 71-79 (P. 76 gives a discussion of technique of bleaching and reversing negative to obtain a photographic "positive" of the color pattern.)

Vokes, H. E., 1977, *Cardiidae* (Mollusca: Bivalvia) from the Chippola formation, Calhoun County, Florida: *Tulane Stud. Geol. Paleont.*, v. 13, no. 4, pp. 143-189. (Many fossil *Cardiidae* in "living" color.)

There have been various other articles in **Tulane Studies in Geology and Paleontology** over the years in which various species have been figured with ultraviolet patterns.

All the best,  
Emily Vokes

#### ANNOUNCING:

The formation of a new group in Venezuela, the Sociedad Venezolana de Malacologia (SOVEMA), for the study of malacology, marine biology, shellcraft, conchology and related scientific pursuits. We extend our congratulations and best wishes for the growing success of this latest addition to the worldwide community of malacology. For more information, write to Dr. Rafael Martinez, President, Sociedad Venezolana de Malacologia, Apartado Postal 47058, Caracas 1041-A, Venezuela.

#### HAVE YOU HEARD:

About the **Bulletin of Zoological Nomenclature**, a quarterly which keeps you up to date on all the nomenclatural developments? Or about the **Official Lists and Indexes of Names and Works in Zoology**? For information about these publications of interest to the serious amateur, write the International Trust for Zoological Nomenclature, British Museum of Natural History, Cromwell Road, London, SW7 5BD, UK.

About the new book on Spondylus, **Spiny Oysters of the World — Spondylus** by Kevin Lamprell? Available from E. J. Brill, Co., Suite 1004, 1780 Broadway, N.Y., NY 10019 for \$18.25 plus \$2.50 p/h.



## SPOTLIGHT ON LYRIA

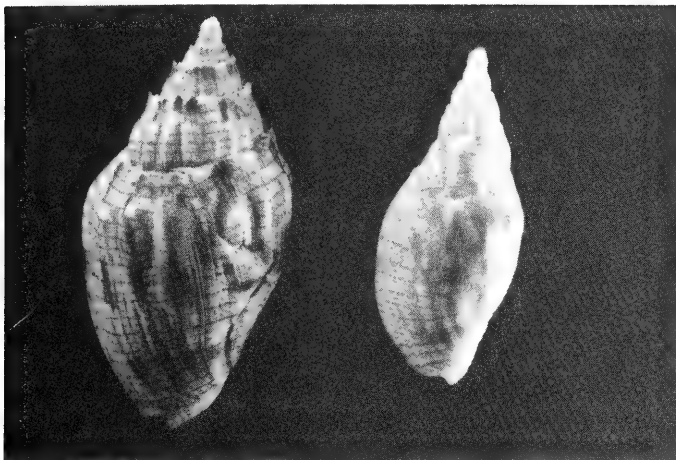


Figure 1

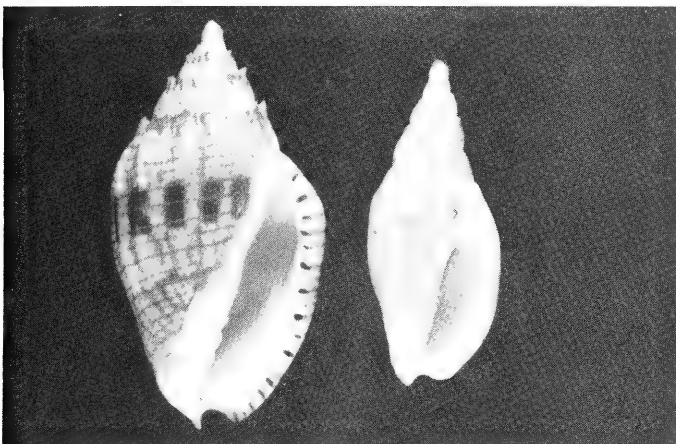


Figure 2

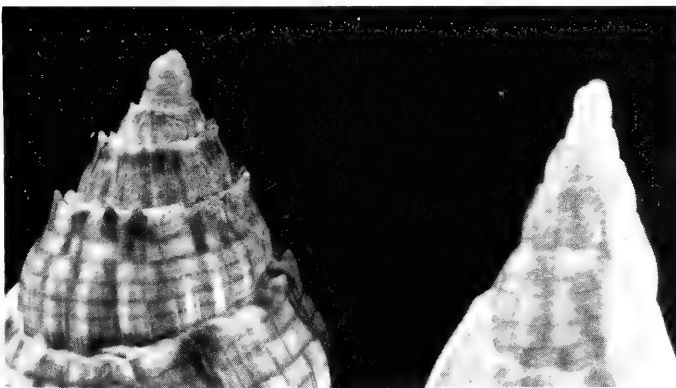


Figure 3



Figure 6



Figure 7

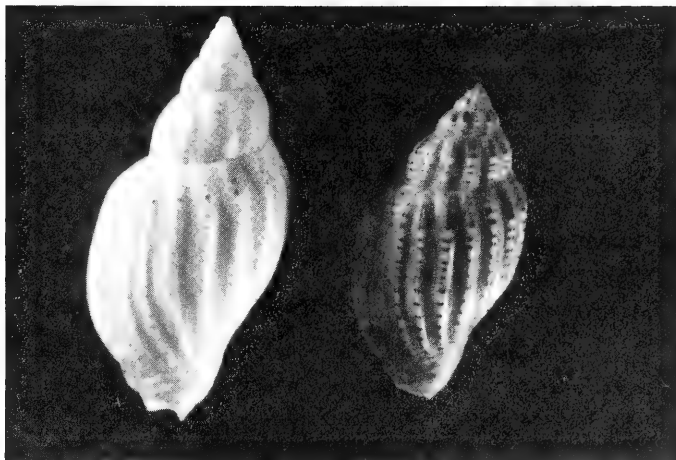


Figure 4

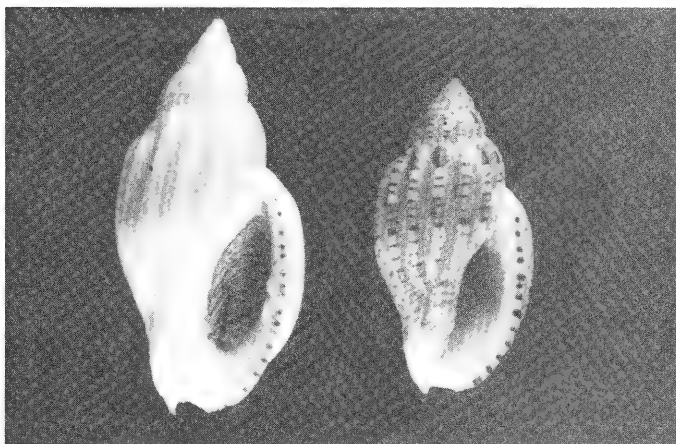


Figure 5

Figures 1-3: The rare *Lyria cloveriana* Weaver, 1963. The larger specimen (left in photos) appeared so distinctive that it might represent a new species, but Emerson and Sage concluded that it probably represents a mature adult specimen with more developed sculpture than any presently known specimens. Left: 76.7mm, live collected off Trincomalee, Sri Lanka in 1983, at 125 feet on a sandy, silty bottom. Right: 61.7mm, dead collected by diver from south Sri Lanka. Both specimens are from Janowsky, Mal de Mer Enterprises.

Figures 4 & 5: *Lyria archeri* (Angas, 1865) has been recognized by Emerson and Sage as a smaller, darker, shallow water ecological form of *Lyria beauui*, 45.6mm, on the left, was live collected in a trap in 50-60 fms. off Capesterre, Basseterre, Guadeloupe. *Lyria archeri*, 37mm, on the right, is from Martinique. Both specimens are from Janowsky, Mal de Mer Enterprises.

Figures 6 & 7: The holotypes of two rare Caribbean *Lyria* described by Emerson in 1985. Left: *Lyria russjenseni*, taken by a fisherman in a lobster pot off La Paguera, Puerto Rico, 65mm (AMNH #213576). *Lyria leonardi* from off Cabo Rojo, Puerto Rico, trawled in 500 meters, 52mm (AMNH #21375).

Florida residents are requested to notify us of their new zip codes.



## BOARD TALK

From **Treasurer, WALTER SAGE**: Thanks to all who have sent in their dues renewal for 1988 (slightly over half the current membership have responded so far) — your prompt payment will help make our administrative duties less burdensome in the months to come. If you have not sent in your 1988 dues, please do so soon.

Some reminders: Please let your editor or membership chairperson know if you fail to receive an issue of **AMERICAN CONCHOLOGIST** or if there is an error in your address label. Also, COA pins, T-shirts and tote bags are available from me.

I want to thank **Phyllis** and **Bernard Pipher** for all the work they have done for COA. As membership chairpersons, they have made my job easier and they have been great to work with. They will continue to house back issues prior to 1987, so write to them for information. Please join me in welcoming **Bobbie Houchin**, the new membership chairperson.

From **Shell Show Chairman DON DAN**: With a full complement of shows scheduled, the 1988 winter & spring shell show line-up appears to be headed towards another banner season. New this year is the Treasure Coast Shell Show in Stuart, Florida. Although Treasure Coast has held members-only club shows, this will be the first openly competitive show.

Naples Shell Show leads off the season in new quarters: the Naples Depot, an exhibition hall renovated from an old historical building. Also, for the first time, there will be dealers at the show. There is a new location for the S.W. Florida Shell Show also: the spanking new Sheraton Hotel in Ft. Myers. Also changed is its traditional 3rd-weekend-of-January date, now shifted to mid-February to better cater to winter visitors. The Greater Miami Shell Show will again be held at the spacious North Miami Armory where it was held last year.

I have been informed that due to difficulty in securing a suitable place for a shell show, the Palm Beach Show will be a non-competing exhibit for 1988. It is hoped that this show can return to the Palm Beach Mall in 1989 when its renovation will be complete. Then, Palm Beach can resume a competitive format.

We welcome back the Long Island Shell Show. Extensive preparations are being made to publicize this rare Northeastern United States show. One would imagine that the potential for success should be very high due to its location in the most densely populated part of our country.

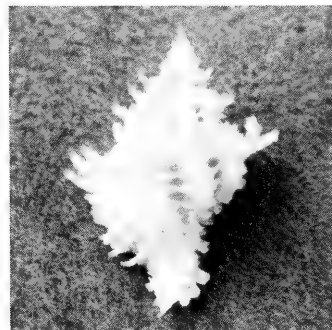
The following list, covering all the events announced in the United States through June 1988, includes the contact address and telephone number through which you can get more information.

Jan. 15 - 17	Naples Shell Show Jim Erler/Naples Shell Club P.O. Box 1991 Naples, FL 33939 .....(813) 775-0064
Jan. 22 - 24	Astronaut Trail Shell Show, Melbourne, FL Jim & Bobbi Cordy 385 Needle Blvd. Merritt Is., FL 32953 .....(305) 452-5736
Jan. 29 - 31	Greater Miami Shell Show, N. Miami, FL BJ Larson 8850 Byron Avenue Surfside, FL 33154 .....(305) 554-1981
Feb. 5 - 7	Broward Shell Show, Pompano Beach, FL Jean Andrews 451 S.E. 15th Avenue Pompano Beach, FL 33060 .....(305) 782-2837
Feb. 12 - 14	S.W. Florida Shell Show, Ft. Myers, FL Eugene P. Herbert 19168 Meadow Brook Court N.W. N. Ft. Myers, FL 33903 .....(813) 731-2405
Feb. 19 - 21	Sarasota Shell Show, Sarasota, FL June Bailey 813 Bayport Way Long Boat Key, FL 33548 .....(813) 383-6657
Feb. 26 - 28	Palm Beach County Shell Show, W. Palm Beach, FL Phyllis Diegel 143 Alcazar Street Royal Palm Beach, FL 33411 .....(305) 798-5351
Feb. 26 - 28	St. Petersburg Shell Show, Treasure Is., FL Bob & Betty Lipe 440 75th Avenue St. Petersburg Beach, FL .....(813) 360-0586

Mar. 3 - 6	Sanibel Shell Fair, Sanibel, FL Doris H. Platt Sanibel Community Association P.O. Box 76 Sanibel, FL 33957 .....(813) 472-2511
Mar. 9 - 10	Marco Is. Shell Club Show VIII, Marco Is., FL Dolly Bergman 58 N. Collier Blvd. Gulfview #1503 Marco Island, FL 33937 .....(813) 642-6595
Mar. 19 - 20	Treasure Coast Shell Show, Stuart, FL Anita Blondin 1808 Circle Drive Juno, FL 33408 .....(305) 626-7484
Mar. 25 - 27	Central Florida Shell Show, Orlando, FL Dave Green 5883 Pitch Pine Drive Orlando, FL 32819 .....(305) 345-0286
Apr. 8 - 10	Greater Georgia Shell Show, Atlanta, GA Henry Close 403 Ansley Villa Drive Atlanta, GA 30324 .....(404) 892-6744
Apr. 22 - 25	St. Louis Shell Show, St. Louis, MO George Karleskint 2007 S. Compton Ave. St. Louis, MO 63104 .....(314) 865-0656
Apr. 29 - May 1	Long Island Shell Show, Freeport, NY John & Vi Greenlaw 5 Etna Lane Dix Hills, NY 11746 .....(516) 421-5235
Jun. 19 - 24	American Malacological Union Annual Meeting, Charleston, SC Richard E. Petit P.O. Box 30 N. Myrtle Beach, SC 29582 .....(803) 249-1651

## LATIAXIS UPDATE

by David DeLucia



*Latiaxis yumimarumai* Kosuge, 1985.

*fenestratus* at this time are actually *B. sibogae*. Please note that the illustration in Clover's *Latiaxis Catalog* of *B. fenestratus* is incorrect as it also portrays *B. sibogae*. And to further confuse the matter, *B. fenestratus* is now known as *B. wormaldi* (Powell, 1971).

Secondly, after examining a large series of *Latiaxis (Babelomurex) gemmatus* Shikama, 1966 and *Latiaxis (Babelomurex) mactanica* Kosuge, 1979, I am convinced that Kosuge is right, that they are the same species, with *L. gemmatus* taking priority as the older of the two names. The shell I pictured in 1984 as *L. mactanica* was purchased under that name, but after working with it for a while, I feel that it is actually a small *Latiaxis (Babelomurex) diadema* (A. Adams, 1854), a very common species offered by dealers under the names *Latiaxis (Babelomurex) princeps* Melvill, 1912 and its synonym *L. castaneotinctus* Kosuge, 1980. I believe both of these names are synonymous with *L. diadema*.

Finally, the shell I incorrectly illustrated as *Latiaxis (Babelomurex) kawanishii* (Kosuge, 1979) was actually unnamed in 1984. The following year, Sadao Kosuge described it as *Latiaxis (Babelomurex) yumimarumai*, in honor of his co-author, Massaji Susuki's daughter Yumi Kaneko "in commemoration of her marriage with Mr. Nobuhiro Kaneko." This shell is quite common in the Philippines, and although similar in some respects to *Latiaxis (Babelomurex) tosanus* Hirase, 1908, it may deserve to be separated from it at the specific level.

Since the appearance of my article, "Latiaxis Look-Alikes" in the September, 1987 **COA Bulletin**, I have come to a few conclusions that should interest all "coralliophiles."

First of all, the shell pictured as *Latiaxis (Babelomurex) fenestratus* (Kosuge, 1980) is actually *Latiaxis (Babelomurex) sibogae* Schepman, 1911, an uncommon species that is close to *L. echinatus* Azuma, 1960. To the best of my knowledge, the shells being sold by dealers as *B. fenestratus* at this time are actually *B. sibogae*. Please note that the illustration in Clover's *Latiaxis Catalog* of *B. fenestratus* is incorrect as it also portrays *B. sibogae*. And to further confuse the matter, *B. fenestratus* is now known as *B. wormaldi* (Powell, 1971).

## BOOK REVIEWS:

**NEW CARIBBEAN MOLLUSCAN FAUNAS** by Edward J. Petuch, 1987. 154 + 4 pp. 28 + 1 plates. Paperback. CERF, P.O. Box 8068, Charlottesville, VA. \$32.50, plus postage.

This well-illustrated booklet will help connoisseurs of Caribbean seashells identify many of the interesting new forms and species turning up in offshore waters from Brazil to Florida. 109 new species and five new genera are described, as well as 82 previously described species which are not illustrated in many popular shell books.

The paper attempts to straddle both the world of the popular conchologist and the domain of the scientist, but does neither very well. The short bibliography includes such guides as **American Seashells** and the popular books of Jerry Walls, Eli Rios, C. M. Burgess and even Wagner and Abbott's **Standard Catalog of Shells**, but fails to include such important revisions as Cernohorsky's monograph of the Mitridae. This, and the fact that no anatomy or radula observations are included, probably accounts for so many of the new synonyms and wrong family and generic placements. Some malacologists estimate that only 50% of Petuch's species are justified, but this reviewer is inclined to think that 25% would be a fairer estimate.

I agree with the author, although perhaps not his possible motives, in naming new species after those we wish to honor for their activities in malacology. This adds a bit of history to our nomenclature. The American Malacological Union's committee on vernacular names frowns on this custom and, indeed, usually refuses to translate these easily remembered names into common English names, e.g., Linda's Volute, Harland's Cone, etc. Their objections and fears, however, have some foundation when we see that this author has named 21 new species after Linda Petuch, 11 after Kevan Sunderland and eight after Robert Pace in the same publication.

Readers should be cautioned that the so-called "faunas" are really not well-defined faunas, but are an assemblage of localized collecting grounds from which the author has been given "strange and new species" by enthusiastic shell collectors and shell dealers. Unfortunately, the paper is split up into these areas as chapters, so that one has to hunt in six places for a particular genus or family. Only time and scientific research will sort out the wheat from the chaff in this interesting work. Meanwhile, shell dealers and shellers will find it a useful identification tool. — R. T. Abbott

**A FIELD GUIDE TO MOLLUSCAN SPAWN, Volume 1.** by Beatrice E. Winner, 1987. 139 pp., illus. Privately published, E.B.M., P.O. Box 14923, North Palm Beach, FL 33408-0923. Spiral plastic bound. \$9.95, plus \$1.50 mailing.

Each year, the **Zoological Record**, a journal listing all scientific mollusk papers published around the world for any given year, records about 300 articles on reproduction and an average of 50 references to the spawn of marine mollusks. Yet nowhere can an amateur conchologist or biology student turn to a ready guide or illustrated key to the various kinds of molluscan egg masses commonly found on our Atlantic shores.

Beatrice Winner, a radiological technologist and amateur malacologist, has come to our rescue by describing and illustrating the spawn and mating behavior of 46 species of common, shallow-water gastropods, mainly from our southeastern seashores. She first gives a general account of fertilization, reproduction and egg-laying of the gastropods. Then she proceeds to give a description, as well as close-up photographs, of the eggs, capsules and larvae of 38 prosobranchs, five opisthobranchs and three pulmonates, the latter including two *Siphonaria* False Limpets and one *Melampus*. A glossary of reproductive terms, two indices and a bibliography with 25 entries completes this handy guide.

While this book cannot claim to be scholarly, either from its quality of photography or its presentation of facts, it certainly will be a stimulus to the inquiring minds of young students and answer the oft-asked question of shellers, "Which mollusk laid those eggs?"

A similar, illustrated account (not mentioned in her bibliography)

of 24 Sanibel gastropods was given by Louise Perry in her **Marine Shells of the Western Coast of Florida** in 1955. The spawn of 37 species were illustrated in the Golden Field Guide, **Seashells of North America**, although not in the magnified details given by Mrs. Winner. We look forward to her next volume. — R. T. Abbott

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Edible species are mentioned, and some of his favorite recipes — which we hope will not encourage overcollecting of the less abundant of the species named.

There are a few late changes and corrections: he notes that the genus *Morum* has recently been put in the family Harpidae, from the Cassidae, and that *Distorsio* is now placed in the Ranellidae, from Cymatiidae.

We highly recommend this lively, informative discussion of shells and shelving which you will play many times, reviewing different sections.

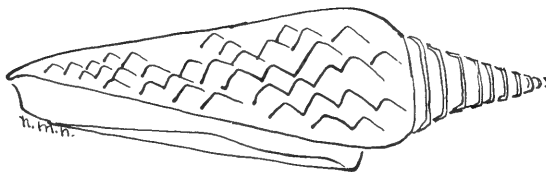
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George Raeihle,  
New York Shell Club Notes

## WE SHALL MISS:

Ruth Chesler, a founding member and past president of the Broward Shell Club and chairperson of the 1986 Ft. Lauderdale COA Convention, who died August 26 in Lautoka, Fiji.

Minnie Lee Campbell, longtime Jacksonville Shell Club member, past president, shell show chairperson and editor of the *Shell-O-Gram*, who died July 13, 1987.



## AMU REPRINTS

Announcing the first in AMU's reprint series of out-of-print molluscan literature, Roding's 1798 **Museum Boltinianum**, a reference that must be used by all molluscan taxonomists. Soft-bound, viii + 199 pages. \$15 to AMU members, \$20 to non-members.

Also available is the reprint of Binney's 1864 **The Complete Writings of Constantine Smaltz Rafinesque, on Recent and Fossil Conchology**, softbound, 98 pages, 3 plates. \$6 to AMU members, \$8 to non-members. Write Paula Mikkelsen, Harbor Branch Oceanographic Institution, 5600 Old Dixie Highway, Fort Pierce, FL 33450-9719.



### FORT MYERS FEVER: 1988 CONVENTION UPDATE

by Mili Backus

The 16th Annual 1988 COA Convention will be hosted by Southwest Florida Conchologist Society (A mouthful, to be sure, but a 20-year old club with lots of shell collecting pizzaz and COA Trophies to prove it, plus warm hearts and lots of southern hospitality. From now on, we'll refer to the club as SWFCS, okay?)

The dates to circle on your calendar are July 11-15. The Convention will begin with registration on Monday, July 11 and close with the Banquet on the 15th. But . . . as an added feature on Saturday, July 16, a field trip to the Sarasota Fossil Pit is scheduled for those who decide to stay over. Headquarters for the Convention is the magnificent Sheraton Harbor Place Hotel, on the banks of the Caloosahatchee River, overlooking picturesque Fort Myers Yacht Basin. On this spot 100 years ago, the original Fort Myers was founded.

Why not plan your summer vacation around the COA Convention dates? This Golden Area has so much to offer — shimmering white beaches, shells, fishing, sailing, sparkling seas, luxurious tropical landscapes, and gleaming coastal barrier islands encircling Fort Myers like a jeweled necklace.

The impressive Harbor Place Hotel has 452 suites, free parking to Convention guests, outdoor and indoor pools, tennis, a recreation dome, lounges with live entertainment, restaurants, boutiques, shops, beauty salons, boat rentals and cruises, and so much more. It is situated within walking distance of the Thomas Edison Winter Home, and just a leisurely stroll from the recently restored downtown Fort Myers and River Front, areas that offer excellent dining and intriguing shopping.

The SWFCS COA Convention Committees are having a grand "Sweet 16 time" planning programs, field trips and sightseeing jaunts to entertain COA members next July. There's so much to do, to see, to experience, to enjoy, that it's difficult to keep it contained within the five scheduled Convention Days. It is certain a fascinating COA Banquet in the gorgeous hotel ballroom anchors down the closing end of the Convention, and Registration is set for Monday, July 11 — but in between . . . LOOK OUT! Pertinent information will be following along, clickety-clack . . . from now til July.

SWFCS will be waiting to greet you at the Sweet Sixteen COA Convention in Fort Myers!

### OOPS!

Sue Stephens notes that the fossil labelled *Murex florifer* on the cover of the June issue of the **AMERICAN CONCHOLOGIST** is actually *Chicoreus floridanus* E. H. Vokes, 1965.

Richard Goldberg's article in the September issue, **Unusual Bulimulidae from Peru**, contained two errors: p. 9, col. 1 — Bruere reduced 23, not 233 groups to synonyms; and p. 10, col. 1 — caption to *B. elatus*, the size range should be 14-17mm.

### PIN MONEY . . .

The New York Shell Club, after a period of several years, again has a supply of their club pins. Those wishing to purchase pins may contact **Theta Loubacos**, Treasurer, New York Shell Club, 66 W. 94th Street, Apt. 20C, New York, NY 10025.



Using the official state shell, the Scotch Bonnet, *Phalium granulatum*, North Carolina Shell Club member **Norma Merrill Hattman** has designed a new pin for the club. North Carolina was the first state in the U.S. to establish an official state shell on May 28, 1965. Order from **Alta Van Landingham**, P.O. Box 542, Hampstead, NC 28443. \$4.50



The logo for **North Texas Conchological Society's** new club pin was designed in 1976 by Linda Eskew, Gail Canon and the artists at the Dallas Museum of Natural History. It super-imposes a Banded Tulip and an ammonite fossil on the outline of the State of Texas, reflecting the club's land-locked status as well as their marine interests. The pins may be purchased for \$3 from Club Treasurer **Pauline De Morcia**, 4104 Southwestern Blvd., Dallas, TX 75225.

**Does your club have pins for sale or exchange? Send details to AMERICAN CONCHOLOGIST for publication in future issues.**

### PALMETTO SHELL CLUB

After returning from a Kirk Anders shelling trip to Eleuthera last July and hearing about the activities of the Jacksonville Shell Club and others, I began to wonder, "Why couldn't we have a club here in Columbia?"

With a lot of help from a journalist cousin who writes a weekly feature column and from Norm Paschall, Gary Gordon, Dean Webber, Don Young, Judy Earl, Dick Petit and Margie Morgan, the Palmetto Shell Club of Columbia, South Carolina was born (after a few labor pains) on August 13th, 1987, with thirteen members — no, we're not superstitious.

Our membership is now up to 43 and still growing. Our October field trip was to Wilmington, North Carolina, to the North Carolina Shell Show. In November, we had 25 signed up for a trip to Edisto Island, S.C.

Suggestions from any COA member concerning the continuance of a successful club will be greatly appreciated and warmly received. We have a good group and we're going to keep it that way.

Many thanks again to the friends and shellers who helped us. We couldn't have gotten off the ground without their assistance.

Our meetings are held the 2nd Sunday at 3 p.m. at the 7 Oaks Park near Irmo, a suburb of Columbia. We welcome any and all who would like to join us!

**Carol C. Boswell**, President  
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## AMU 1988 ANNUAL MEETING



The AMU 1988 Annual Meeting will be held in Charleston, South Carolina, June 19-26, 1988 at the Radisson Francis Marion Hotel. Three Symposia will be presented: Applications of Nucleic Acid Techniques to Molluscan Systematics, convened by Dr. M. G. Harasewych; Systematics and Evolution of Non-marine Mollusks, convened by Dr.

Robert Hershler; and History of Malacology, convened by Dr. W. Backhuys. Marine, non-marine and fossil field trips are being planned. For information, contact R. E. Petit, P.O. Box 30, North Myrtle Beach, SC 29582 (telephone 803-249-1454; evenings 803-249-1651).

## HAVE YOU HEARD:

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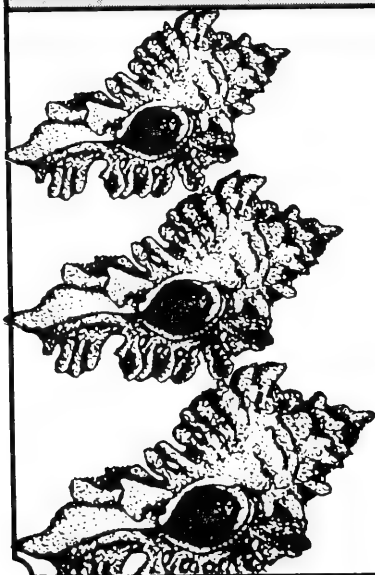
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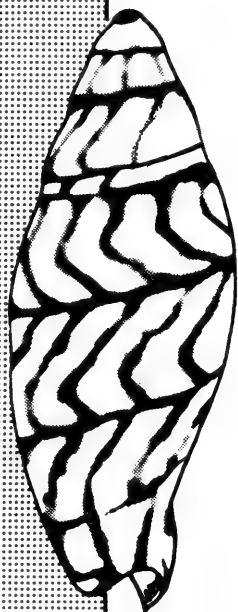
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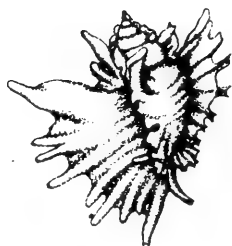
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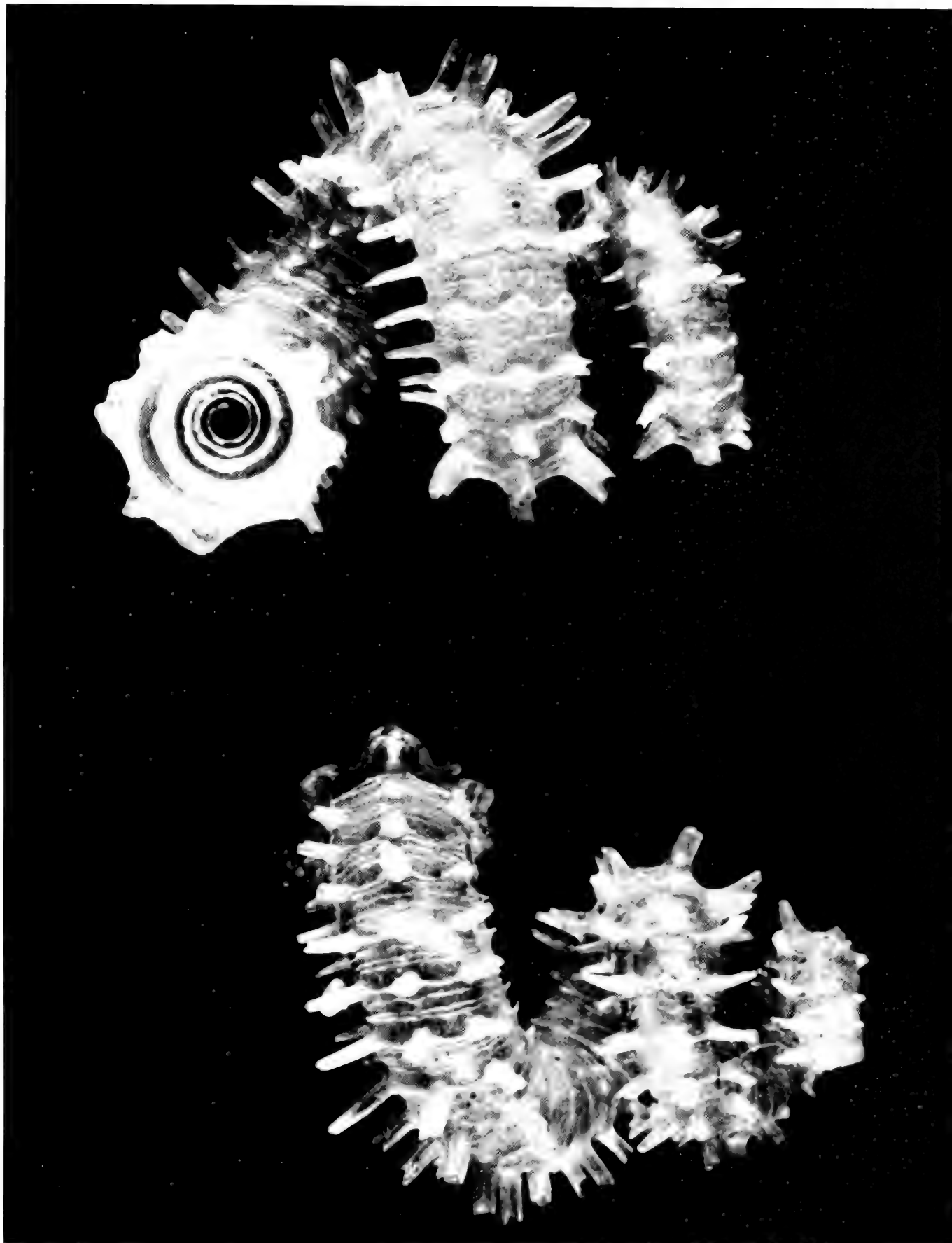
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 16, NO. 1

MARCH 1988





## CONCHOLOGISTS OF AMERICA, INC. A Collective Devotion To Advancing- Conchology.

In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and world. An annual convention is held each year in a different part of the country.

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Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January.

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**Covers:** Coincidentally, two superb photos of land snails endemic to the same restricted habitat in Cuba were submitted independently by two different people. Both snails have the unusual feature of hollow spines, and both live in the same habitat, clinging to high rocks in the hot sun, waiting for shade to emerge and feed. Yet they are not even remotely related; one is an operculate snail, the other a pulmonate.

**Front** — *Blaesospira echinus* (Pfeiffer, 1864), Ensenada de Miranda, west base of El Queque, Vinales, Pinar del Rio Province; collected by M. K. Jacobson, July, 1953. A spectacular 7mm operculate land snail in the family Annulariidae, this is the type of its genus. The hollow spines are arranged in four rows. Photo by Richard Goldberg.

**Back** — Bishop Elliott's Urocope (*Gongylostoma ellioti*) (Poey, 1858), a collector's treasure abundant only in the sheer limestone cliffs of the Sierra de Guane in Pinar del Rio Province, Cuba. This inch-long shell is bedecked with minute, paddle-shaped hollow spines. Photo by R. Tucker Abbott. (See page 3).

## OUR GUEST EDITORIAL

Let us welcome our guest editors of the March Issue, R. Tucker Abbott and Richard L. Goldberg, who kindly helped organize and edit much of this number. It deals with land shells, not the forte of your regular editor.

We usually associate Dr. Abbott with the study of marine mollusks, but his career also includes a stint with the U.S. Navy during World War II as a medical malacologist doing research on

freshwater and land shells. He has described new species of terrestrial snails from Christmas Island in the Indian Ocean to the Marianas in the Pacific.

Richard Goldberg is well known to many of you as past president of COA and former editor of the *COA Bulletin*. An extremely knowledgeable amateur student of terrestrials, he has travelled widely in search of land shells, throughout the United States, extensively in the Caribbean, and to Greece. He is also the foremost dealer in land shells in the U.S.

The seven full-color plates in this issue are the result of the generosity of several dedicated COA members. Dr. Alfredo Romeu is a lover of Cuban snails who now lives in Jacksonville, Florida. Archie Jones of Miami is a well-recognized expert on the Everglades Tree Snail, *Liguus fasciatus*. Their financial support happily coincides with Dr. Abbott's near-completion of his new Compendium of Land Shells. Our seven color plates are a preview of this forthcoming (hopefully in 1989) companion to his Compendium of Seashells. We thank you, gentlemen.

— Lynn Scheu

## Dear COA Reader:

Our grand hobby and science of conchology, long in the forefront of natural history studies, is being threatened these days by two malaises — the increasing destruction and pollution of our natural surroundings in almost every corner of the earth, — and an uneasy feeling among us shell enthusiasts that collecting is becoming an unpopular assault upon molluscan populations. Soaring prices of rare marine shells and the multiplication of names by amateur workers are making some of us uncomfortable about seashell collecting.

But relief is only an arm's length away. We're beginning to reawaken the old and favorite pursuit of the land shells of meadows, hillsides, jungles and remote deserts. During the late 1890's and early 1900's, land shell collecting was as popular as today's search for cones and cowries.

Most of us are not aware that there are more species of land shells than of bivalves, chitons, tusks and cephalopods combined. Today, more professional biologists are studying terrestrial gastropods than are doing research in seashells. In fact, there are twice as many papers published each year on non-marine shells as on marine species.

Why this new and sudden interest in land shells? For one thing, they're almost everywhere. The average backyard in Europe or the Americas harbors about ten species. A trek into nearby hills or mountains or a search in the outskirts of a picnic area can be a visit to the home grounds of dozens of land species, usually overlooked by novice collectors.

If anything is going to spark interest in protecting the few forests and jungles left on this planet, it is going to be a widespread interest in protecting our tree and ground snails. The danger of overcollecting is minimal compared to the natural effects of predators and the consequences of cutting down and bulldozing away our wild vegetation.

To further this interest in terrestrial mollusks several fine works have been published in recent years. Pilsbry's 1948 *Land Mollusca of North America*, Walter F. Webb's 1948 *Foreign Land Shells*, Kerney & Cameron's 1983 *A Field Guide to the Land Snails of Britain and Northwest Europe*, and more recently Parkinson's *Tropical Landshells of the World* are only a few of the available identification sources.

In this issue of *American Conchologist* you will find tantalizing accounts of Florida Tree Snails by Archie Jones, Cuban Polymitas by Alfredo Romeu, and the adventures of Rich Goldberg in the Cockpit parishes of Jamaica. We hope you'll take the time to look up from your glamorous cones and pectens and your alabaster-white fossils to view a few of our brilliantly colored land shells.

— R. Tucker Abbott

## IN SEARCH OF BISHOP ELLIOTT'S UROCOP

by John B. Henderson, Jr.

American Diplomat (1879-1923)

In the course of a number of collecting trips to the Antilles for land shells I recall various instances of possibly more than average interest to those who know the delights of a field naturalist. Wherever some particular out-of-the-way locality was visited, often there would be some one species sought and desired above all others, generally a species of very local distribution, and which on account of rarity or beauty inspired us to greater efforts to find. So it was in the case of that splendid big and lusty *Pleurodonte gigantea* at La Ferriere in Haiti, and of *Pl. cognata* in a little valley in extreme western Jamaica. Cuba is full of such preferred and desirable game, but probably the special hunt for *Urocoptis elliotti*\* and its near ally, *U. dautzenbergiana*, proved to be the most strenuous of all similar experiences.

Mr. Charles T. Simpson [Smithsonian Institution conchologist] was with me at the time in Havana, and we were planning for a dash somewhere into the interior, when our excellent friend, Dr. Carlos de la Torre [mayor of Havana and *Polymita* expert], a perfect encyclopedia of Cuban mollusks, suggested we might try for that remarkable pair of Urocoptid twins that are reported to live on two mountains near Guane, and which had eluded all search since they were originally found by some fortunate collector many years ago. We lost no time in getting to Guane. Besides our special reason for going there, we well knew the region to be rich in that splendid fauna of the inner range of the Sierra de los Organos. There occur the lovely *Eutrochatella regina*, the *parraiana* group of *Helices*, a host of Urocoptids, fine operculates and some peculiarly painted *Liguus*. Doctor Torre couldn't resist the temptation at the last second, so boarded the train with us. The doctor is always a most welcome and charming companion.

We located our mountains, which are in sight from Guane. One of them is the "Sierra de Guane," where presumably lived in security from prowling naturalists the strange *dautzenbergiana*.

Now we simply had to have those fellows. We prepared for their capture with the care and thought that mountain climbers give to their campaigns against loftier peaks. On horseback and by volanta we proceeded to the base of the Sierra and began our recognizance, but without a sign, not a "bone," of *elliotti*. There were, however, no end of other things, and the day was made glorious by a catch of great size and interest. It is a day that fairly shines in memory, and I have lived it over in retrospect with Simpson many times since.

\*See back cover. Named for son of Episcopalian Bishop Stephen Elliott of Charleston, South Carolina, also named Stephen.

The next morning bright and early we made our second attack. It was apparent that some climbing must be done. Far up on one side a great white limestone escarpment projects out from the mass of tropical vegetation covering the mountains, like the forehead of some great giant of the Sierra. It is perpendicular, forbidding and dangerous. Buzzards constantly circle about it, and it is likely to be the nesting place of millions of fretful wasps; but just in such places live some of Cuba's very best molluscan offerings. I felt it must be attained, so up I "goes," scrambling, slipping, clinging to trees, crawling along limbs, only stopping now and then to catch a breath or pick up some appealing *Liguus*. Up until the blue Caribbean glistened on the horizon and the plains of Pinar del Rio lay stretched out like some huge map. At last the base of the cliff was attained, but no *elliotti* as yet. Through narrow crevasses I wriggled on up until finally, quite done for and exhausted. I lay for a while upon a little projecting rock-shelf to cool off and to speculate upon the folly of ever leaving a happy home, etc. Then, not suddenly, but gradually, I began to take in a remarkable sight. It required some moments to acquire what the psychologists call the "presentation" of the sight, but soon my heart began to thump and my excitement to grow until I almost feared to trust myself alone upon such a height. All over the rocks, on the perpendicular cliffs, and exposed to the glare of a dazzling sun, were myriads of *U. elliotti*, clinging in their peculiar fashion to the surface, all alive and in finest condition of unbroken spires, and that color tone of health possessed only by fresh, living shells.

But now arose the problem as to how to gather them. It takes one hand to hold a box, another to pick specimens from their moorings, and it requires two more to hang on to the wall of smooth rock. Fortunately there was a breast pocket in my shirt, and with a twig I could keep it gaping open. Then with my lips I tenderly gathered them one by one, slowly and cautiously, and spat them into that happy pocket.

Had any telescope been trained upon me, I would only have furnished one further evidence of hopeless mental condition, for indeed, what sane man would spend an hour, or a moment as for that, fondly kissing a lofty cliff in Pinar del Rio?

If any reader of *The Nautilus* cares to take a chance on that telescope down below, and also the risk of a long fall, I can assure him that there are still a hundred thousand fine *U. elliotti* waiting for him right there on the Sierra de Guane.

— from *The Nautilus*, September, 1911

## CHARLES J. HERTWECK 1915-1987



Our beloved Charlie Hertweck passed away on December 3. Charlie inducted many of us not only into the club, but to all facets of shell collecting, sharing his vast knowledge and love of nature with generosity and friendliness. As president of the Sarasota Shell Club for five years, his humor entertained us while his hard work sustained us and his tact kept us together. His activities greatly benefitted the COA too, as a member at each annual meeting and while serving as Director. Who can forget the slide shows by "the old Fossil" about the wonders to be found not only at the Sarasota pit, but all over the world? It is fitting that the lovely exhibit of fossils he and Violet showed last season should have won so many awards, including the prized Smithsonian at the St. Petersburg Show. A final tribute to this man who loved shells is the naming of a fossil mollusk, *Ecphora hertweckorum*, for him by his friend Dr. Edward Petuch in the latest issue of *THE NAUTILUS*. Charlie, we'll miss you!

— Peggy Williams, Sarasota Shell Club Newsletter, 1/88

## LAND SHELLING ON THE ISLAND OF JAMAICA

by Richard L. Goldberg

Best known for resort hotels and Reggae music, Jamaica's easy access and good climate make it a major Caribbean tourist spot. My interest in Jamaica dates back to 1971 when I first traveled to the island as a novice shell collector with virtually no knowledge that land shells existed there. My memories of that first trip include befriending a local MoBay (Montego Bay) diver who took me shelling in his homemade dinghy to some of Jamaica's finest reefs.

Years later I was surprised to learn that Jamaica harbors a fascinating land shell fauna larger than that of any other comparable land mass. Thinking of my first trip and what I might have found if I had known, I promised myself a landshell collecting trip there. But I knew nothing about the island, or where to find this diverse and beautiful fauna.

I found a paucity of literature on the 500 species of Jamaican land shells. C. B. Adams published preliminary descriptions of 360 species in the mid-1800's, intending a monograph illustrating and fully describing them later. His colleague, Edward Chitty, described another 30 species, also without illustrations. Adams died at 39 of yellow fever, monograph incomplete. Since then, scattered papers on Jamaican land shells have appeared in scientific journals, a relatively small number, considering the size of the fauna. The data gleaned from these papers, though, gave me a springboard for my first excursion.

Mobility is paramount to amassing a good collection of Jamaican land shells. Many species have limited ranges — only one mountain or valley in a few cases — while others are widespread throughout the island, but tend to vary considerably. Jamaica is only 144 miles long by 49 miles at its widest point, so going from point A to point B may seem easy. The island's "Class A" roads

are well-paved two lane routes linking the major towns. But they are mainly coastal roads, and the best collecting is inland; so one must use "Class B" roads, which vary from good to poor depending upon the parish. Yet it is the roads listed as "Class C," "Other," and "Motorable Track or Footpath," that pass through the snail-rich rural inland areas. These are treacherous at best. It may take four days, with stops along the way to sample land snail fauna, to go from Manchioneal on the extreme east coast to Negril on the west, using inland routes. During one trip criss-crossing the island, I clocked over 2,000 miles on my rental car, with just two flat tires!

I strongly suggest getting a set of Jamaican Government Geological Survey Maps, from the Survey Department in Kingston. Going inland with one of the popular gas station road maps can leave one hopelessly lost in a maze of unmarked roads. Survey maps aren't foolproof either. While exploring some of the low-elevation areas of the John Crow Mountains in the east, we took a road clearly shown looping from Hope Bay east to Port Antonio on the north shore. It metamorphosed, after five miles and two hours, from a "Class C" road to a "Motorable Footpath," and then to nonexistent!

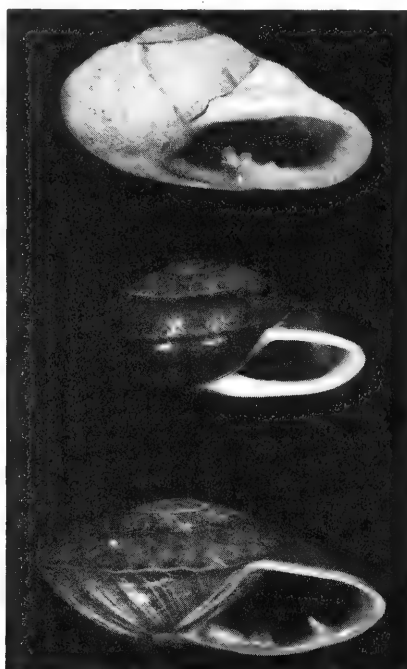
The largest concentration of landshell species are in limestone-rich central and western Jamaica. Here the landscape changes frequently: fields bordered by rolling stone fences, dry limestone cliffs, shady forested hillsides, moist mid-level rain forests, rural villages, bauxite mining fields, rapid rivers flowing through deep gorges, and expansive vistas from high tortuous mountain roads, with altitudes varying from sea level to over 2,000 feet!

On the other hand, the John Crow and the Blue Mountains

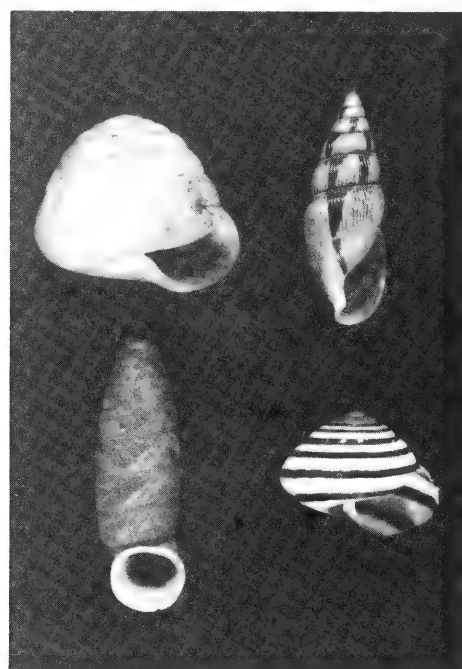


Photos by Richard Goldberg

Jamaican operculates: *Aperostoma (Cycladamsia) seminudum* (C. B. Adams, 1851) Cockpit Country, 24mm [top]; *Parachondria (Parachondrella) columna* (Wood, 1828) Unity Valley, St. Ann's Par., 19mm [bottom left]; and *Adamsiella miranda* (C. B. Adams, 1849) from Comfort Hall, Trelawny Par., 21 mm [right].



Unique Camaenidae — [from top] *Thelidomus aspera* (Fer., 1821) with white color and granular surface, 47mm; *Pleurodonte carmelita* (Fer., 1821), the only Jamaican Pleurodontid without apertural dentition, 42mm and *Pleurodonte chemnitziana* (Pfeiffer, 1846), 50mm.



Jamaican pulmonates: *Sagda spei* Pilsbry & Brown, 1910, Trainline, St. Ann's Par., 20mm [top left]; *Varicella procera* (C. B. Adams, 1849) center of Cockpit Country, 24mm [right]; *Urocoptis ambigua* (C. B. Adams, 1849) Comfort Hall, Trelawny Par., 29mm [bottom left]; and *Dialeuca nemoraloides* (C. B. Adams, 1845) Unity Valley, St. Ann's Par., 16mm [right].

(highest elevation: 7,400 feet) make the eastern parishes extremely mountainous, but their shale and igneous rock makes them less suitable for snails. Collecting through these mountains, one finds fewer species of snails, though a few endemics occur: *Pleurodonte carmelita*, and the malleated *P. chemnitziana*, two of the larger and rarer Jamaican species. The jungle and cloud forests above 4,000 feet are a maze of tangled vegetation, towering canopies, seemingly endless precipitation and muddy, oozy trails — a challenge for even the most seasoned land shell collector. The payoff for attempting a trek, though, is contact with a pristine part of Jamaica, and a true breath of fresh air. It does get quite cold for Jamaica — as low as 56° F. in the late afternoon!

Much of the lower elevation forests of the Blue Mountains (1500-300') have been cut away to plant the famous Jamaican Blue Mountain Coffee, reputed to be the best in the world. The snailing here is quite poor. But the John Crow Mountains to the east have not been affected by the slash-and-burn agriculture that is destroying much of the tropics today, and a scattered surface strata of limestone correlates with an increase of terrestrial species here. But, be warned! The Geological Survey Maps do not even show foot trails through much of the John Crows. And after following a Jamaican youth through some of these forests, I know why these treacherous mountains have been left untouched.

On Jamaican trips in 1985, 1986, and 1987, I collected at over 150 stations. Without a doubt, my most prolific and fascinating collecting was in the primitive and untouched Cockpit Country, a 10 × 20 mile natural wonder. Made up of a karst topography of pitfalls and potholes carved out of limestone, it is virtually isolated from the outside world. Sheer cliffs, thick forests and camouflaged sink holes are just a few of the natural hazards. No wonder the Maroons, descendants of escaped slaves from the 1700's, live along the fringes of the Cockpit Country, cutting themselves off from the outside world and its laws. With district names like "Me No Sen You No Come," and the town of Quickstep in the District of Look Behind, many legends developed about the Cockpit Country. No roads and few charted trails make entering without a local guide

unwise. The few trails that do lead through are quite dangerous. Spending the entire day inside the Cockpit Country north of Quickstep, we did not see another human being. Travel books warn that the Maroons are not fond of visitors into their isolated oasis.

There are no dangerous insects or reptiles to contend with in the Cockpit Country, just annoying ones. The mosquito population is offensive, so a strong pump-spray mosquito repellent is mandatory. Sturdy water-proof hiking boots, a back pack with collecting receptacles, drinking water and a first aid kit are also musts. Gloves help avoid a painful sting from a small bristle-leaf plant locally called "courage" — you will need plenty if you rub against it.!

The well-conditioned collector could walk the entire width of the Cockpit Country, from Quickstep on the south, along the Pantrepant Trail to Windsor Cave on the north, but he would have to have a vehicle waiting at trail's end. To traverse the Pantrepant Trail takes a full day, without stopping. The trails are a series of steep, up-and-down, muddy tracks, following the Cockpits. The altitude between the bottom and top of a cockpit varies as much as 500 feet. Most of the Cockpit Country ranges between 900 and 2,200 feet above sea level.

The Cockpit Country is home to an infinite variety of wildlife, and it had been explored by scientists of all disciplines. New species, including land snails, are discovered frequently. It's home to some of Jamaica's most exotic land mollusks, including *Tudora (Colobostylus) humphreysiana*, an operculate with a banded pattern and flaring, lavender peristome; and *Eutrochatella tankervillei* (Gray, 1824) [see Am. Conch. v.15, n.4, p.9]. We took 40 species of land shells on one day of my last excursion.

85-90% of Jamaica's terrestrials are endemic, and so are a few genera and subgenera — the beehive-shaped *Sagda* and the dentate *Dentellaria*, a subgenus of *Pleurodonte*. the pulmonate families with the most species include the Sagdidae, the Urocoptidae with their cylindrical-shaped shells, the carnivorous Oleacinidae, and the large, solid Camaenidae. The two large operculate families are the Cyclophoridae and the Annulariidae. One can find species from all

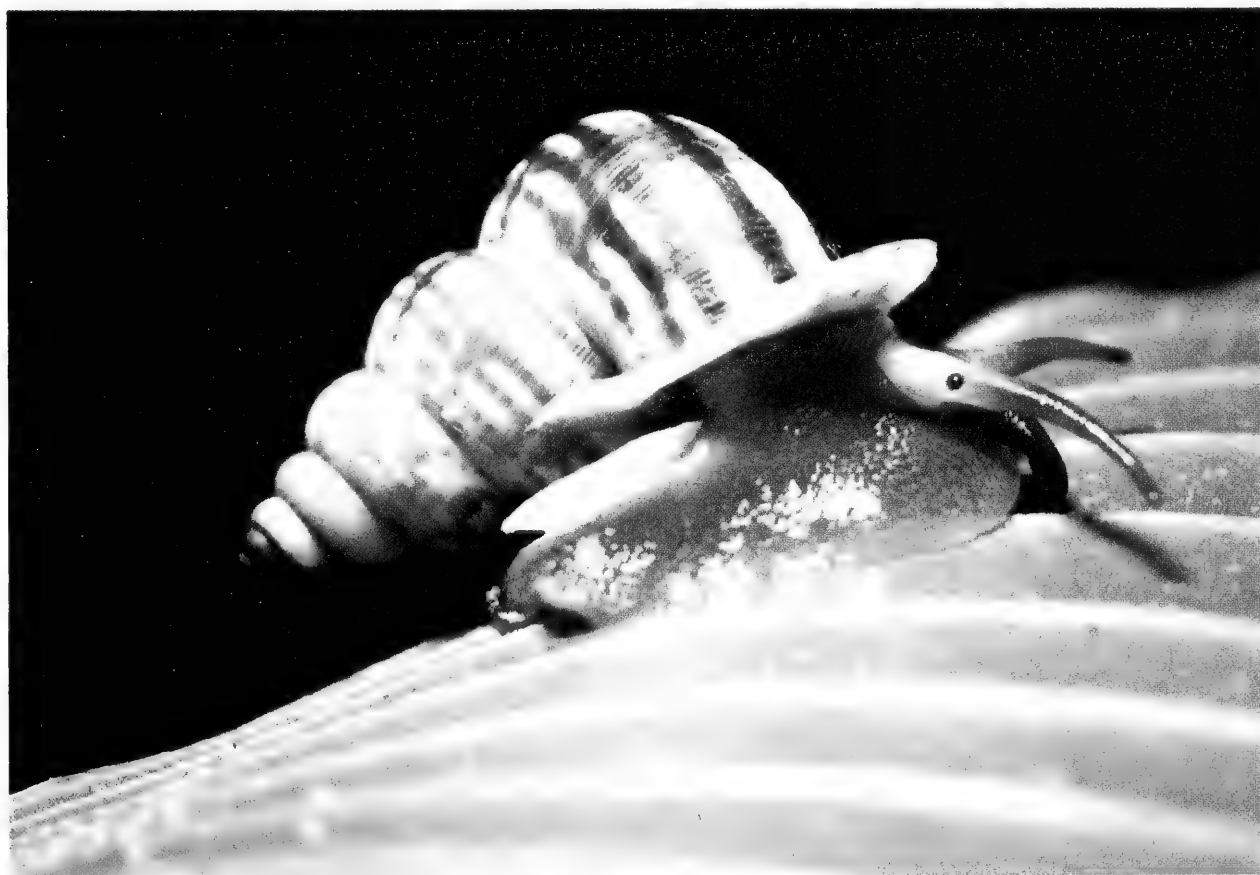


Photo by Richard Goldberg

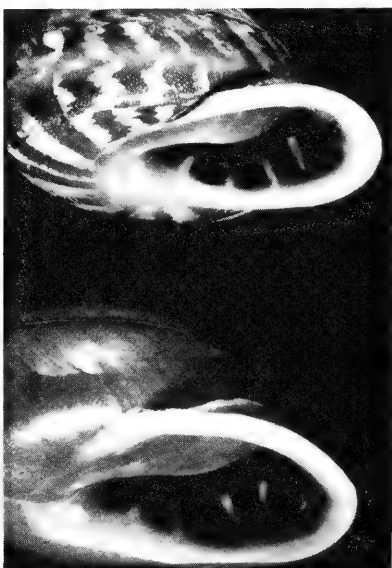
*Tudora (Colobostylus) humphreysiana* (Pfeiffer, 1846), a spectacular half-inch operculate from the Cockpit Country.





A snail-rich habitat along a "class C" road in Lumsden, St. Ann's Parish.

Photos by Richard Goldberg



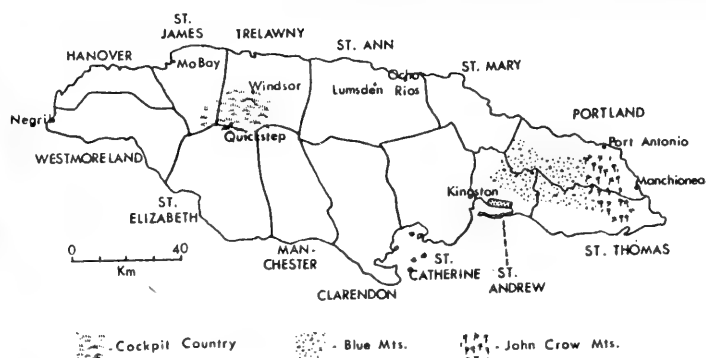
Unique Jamaican "toothy" pleurodontids (*Dentellaria*): [top] *P. picturata* (C. B. Adams, 1849) Negril, Westmoreland Par., 23mm; and *P. sloaneana* (Shuttleworth, in Albers, 1861) Mt. Horeb, St. James Par., 27mm.

of these families at one collecting station in some inland areas. I collected at least four, and as many as 20 species at each of my 150 stations, none of which had more than a 50 yard radius — a relatively high density of species.

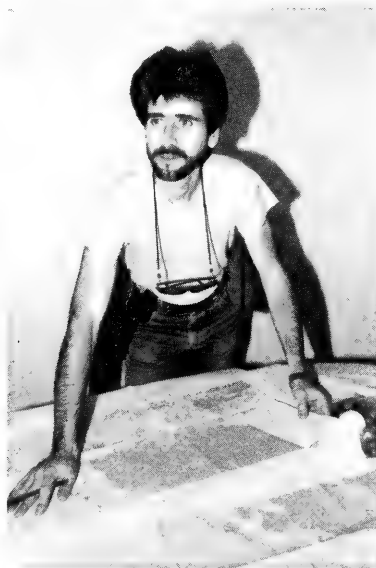
The Cyclophoridae and Annulariidae have, for the most part, very limited ranges. In 1942, Bartsch, in his monograph of the cyclophorids, used the operculum as one of the key generic differences. Without examining opercular sculpture and referring to well-localized data, identifying most of the Jamaican Cyclophoridae would be near impossible. Opercula are also extremely helpful in differentiating the Annulariidae.

Most Jamaicans are very friendly, so a smile and small conversation will quickly make a new friend. But the urban dweller's attitude is quite different from that of the rural Jamaican who rarely sees white tourists and thinks them a novelty. Jamaican children were fascinated and amused to learn that I was collecting snails, and could be very helpful if I showed them exactly what I was looking for, but I had to discourage them from over-collecting. Giving a few Jamaican dollars to helpers seemed to discourage them from asking for my sneakers, my tee-shirts, even my Nikon F-3 camera! And it is a good policy to ask permission and explain that one is doing scientific research before going on private property. One of my guides took me to his brother-in-law's farm in St. James Parish. Here he plucked such snails as *Orthalicus* and *Thelidomus* from the trees with a long pole much like a Liguus pole. His young son picked up snails scattered on the forest floor. I found a nice variety of operculates buried in rock piles near the pig pen! And I got a chance to see how rural Jamaicans live.

Jamaican landshell collecting is by far the best and most interesting I have experienced. I guess my collecting has come full circle — now I return from a trip saying, "I wonder if I should have gotten my feet wet looking for marine shells while I was there?"



Map of Jamaica by Richard Goldberg



The author studies the geological survey maps in preparation for a trek into the John Crow Mountains.

## LETTERS

Dear Mr. Davies,

Your articles on shell deterioration (*AmConch* Jun., Sept., 1987) have led me to wonder about the fish aquarium floss used by some dealers to stuff shell apertures when an operculum has been saved. I suspect it's a petrochemical-derived plastic. Can this harm shells?

A second question concerns cleaning that heavy coat of gray dust off shells from old collections. I scrub with Ivory Soap and a soft brush, rinsing them and drying with a towel when possible. Is this harmful?

John Timmerman

Dear John,

Chemically speaking, an ester (polyester) "wool" is the organic equivalent of salt: "polyester" means that it is a synthetic ester with a very high molecular weight. Such substances are extremely stable . . . thus unlikely to be harmful to shells.

Regarding your method of cleaning old, dirty shells, everything sounds right except for the use of soap, even 99.6% pure Ivory! All true soaps are alkaline by nature and, except for the transparent types, most contain insoluble fillers such as clay, and extreme care would be required to remove all possible residue. I prefer a mild, unscented liquid dishwashing detergent.

Ted Davies

Don't miss the Jacksonville Shell Show, July 29-31. Contact John Fatu, 14149 Tomas Point Lane, Jax, FL (904) 221-1310.

## BEST OF THE NEWSLETTERS

*Gulf Coast Shell Club has done it again. It seems Linda and Jim Brunner, Editors of Shell and Tell, are keeping a captive diver chained under their dock and making him write for their publication month after month — all part of a devious plot to capture our coveted and prestigious Best of the Newsletters award. In any case, Bill Parker's column, "Shell Diver's Log," is the next best thing to actually being there!*

## SHELL DIVER'S LOG

by Bill Parker

6/19/87 — Some days are "Jackpot" days! I wake up feeling great; all the lights are green and the checkout girl is waiting for me, alone at the counter. After two weeks of rough weather and rougher seas, it looks possible if not promising for a run to the natural reefs off Phillip's Inlet. By the time the air and fuel tanks are filled, threatening thunderheads have moved ashore and we have a clear run the 16 miles to our dive site.

On Jackpot Days there is no stress. The reef is quickly illuminated on the bottom machine and the anchor hangs on the first try. No current threatens a hard, air-devouring swim and visibility appears excellent. The heat is intense, so quickly we tumble over the side into lukewarm, liquid lubricity.

A new weight belt utilizing pouches of "BB" shot is far more comfortable than three- or five-pound solid lead blocks. They also prove much more effective in providing stability and "attitude" control.

Plankton thins as we slip into the cooler thermocline at 65 feet. A reef stretches right and left shrouded with schools of silver bait fish and studded with gemlike tropical species such as Queen Angelfish, Butterfly Fish, and various Damselfish. The depth is 80 feet. Detailed searching of nooks, crannies and crevices results in a find of one Leafy Jewel Box (*Chama macerophylla*) and two nice Shovelnose Lobsters for dinner. (Good for the dinner, pooh for the shelling). The dive is spectacular if relatively unproductive, but still the "Jackpot Day" feeling persists as we ascend to a hot, sparkling surface reality.

Watermelon — icy, sweet and dipped in salt water — is the most satisfying between-dive snack that we have discovered. Between seeds we considered our next dive. "let's try a (spit) shallower (spit, spit) spot," I suggest. "Like (spit) the 55 reef (spit)." This refers to a reef which is the only location for *Spondylus ictericus* or for Milk Conch, *Strombus costatus*.

"Well, (spit) we've got several new (spit) LORAN numbers close by (spit) that we've never tried." Doc, my dive partner, is quite an articulate watermelon seed processor. "You (spit) know we need to try some (spit) new spots."

Reason prevails. Quenched by cool melon, we pull anchor and move three miles to an unexplored reef in 70 feet of water. Again the anchor hangs quickly. We try to explore one new spot each trip and sometimes have wasted our precious bottom time on virtual deserts. By the same token, some new dives have been our most productive.

The bottom machine shows only a slight break, if any, in the level of the hard bottom with its very scattered covering of fish. This can mean anything — the only way to know for sure is to look. So with equipment on and anticipation within, we splinter the silvered surface. No current, and the water is so warm here there is no shock on entry.

Curious fish will often come up from the bottom to meet and look us over. Amberjack regularly, grouper sometimes, triggerfish occasionally, but now a first. Queen Angelfish! Dozens! Six to 18 inches long; blue with brilliant yellow patterns and yellow edges on their long, graceful fins, they swirl around us.

The bottom appears. A fungoid-appearing forest of sponges, growing on hard surfaces interspersed with patches of sand, all covered with schools of angelfish. Hundreds! Perhaps it is a breeding reef . . . Sponges not more than two inches in diameter

reach six feet from bottom. Basket sponges from 2-3' to 3-4' tall sprinkle the landscape, punctured between with various shapes and sizes of ball sponges.

In the first basket sponge examined, Doc finds an immature Deer Cowrie, *Cypraea cervus*, which we leave to mature. It is unusual to see one grazing in the open during daylight. Balls of worm shells, *Vermicularia spirata*, are interspersed among the sponges, and Thorny Oysters, *Spondylus americanus*, show up dark against the light bottom. I take only one. It turns out to be orange-yellow, four inches long, with spines up to 2" . . .

There is no ledge so we are free to drift helter-skelter over the liquid fairyland. Moray eels poke curious faces from tubular holes. Large versions of these holes (8-10 inches in diameter) vanish clean-walled and crooked into the limestone. Do creatures keep them clean or does fresh spring water stifle the growth of marine organisms? Knife-edged cracks crisscross the stone, some as much as four feet wide and filled with sand. Sea biscuits make mysterious looking bumps and tracks in the sand.

A prize! Then another! Two perfect Alphabet Cones (*Conus spurius* form *atlanticus*), one 1" and one 2". Not a rare cone but only the third and fourth we have found in our area. A blood red Lion's Paw (*Lyropecten nodosus*) completes the catch. The only addition to the list, when the catch is inspected at home, is a small white clam with a fibrous brown periostracum which was growing embedded in one of the worm shell balls. It is awaiting quieter times for identification.

Jackpot Days! They're not frequent, but maybe are better for that. When I got to Front Beach Road, the very first car stopped to let me into the line of traffic. Thank you, giver of Jackpot Days!

**BEST ANSWERS** to the question posed at the St. Louis COA Convention: Why did the snail cross the road? To get to the Shell station for a retreat.

Doreen Chadwick — Delaware

## MARINE CONFERENCE IN SARASOTA

The 21st Annual Meeting of the Association of Island Marine Laboratories will be held at Mote Marine Laboratory in Sarasota, Florida, May 24-27, 1988. Sessions on marine biology, chemistry and toxicology, geology, fisheries, underwater park management, seagrasses, mangroves and coral reefs will be highlighted as special areas of study. For more information, contact Linda Franklin at (813) 388-4441.



John Timmerman

One reason some shells are rarely found washed up on beaches.

## 100 CONCHOLOGICAL YEARS AGO

**JANUARY 1888.** Horace F. Carpenter (1842-1937), a mineralogist of Pawtucket, was writing his book on "The Shell Bearing Mollusca of Rhode Island."

**JANUARY 1888.** A new 230 page edition of Professor Josiah Keep's (1849-1911) "West Coast Shells" was published in San Francisco and offered postpaid for \$1.75. Keep taught at Mill College from 1885-1911.

**FEBRUARY 5, 1888.** George W. Tyron, Jr., author of "The Manual of Conchology" and conservator of the Conchological Section of the Academy of Natural Sciences, died at the age of 50 in Philadelphia.

**APRIL 23, 1888.** Frank Collin Baker (1867-1942), at the age of 20, reported collecting 24 species, 700 specimens, of live marine shells at Onset, Massachusetts. Baker later became curator of mollusks at Chicago and the University of Illinois.

**JUNE 1888.** William H. Dall (1845-1927), of the Smithsonian Institution, published his famous work on the deepsea mollusks obtained by the steamer *Blake* in the West Indies.

— gleaned for us by R. Tucker Abbott

Nix on Nova Scotia Mollusks —  
Right on Time

In what was described as the most sweeping shutdown in ten years, two western Nova Scotia shellfish grounds were closed due to high levels of paralytic shellfish toxin due to algal blooms in 1987.

The Canadian Department of Fisheries prohibited the harvesting of clams, mussels and scallops by recreational shellers and 300 commercial clam diggers.

All this took place in August 1987 while the National Shellfisheries Association was meeting in Halifax. Their planned technical session was on Toxic Algal Blooms. You can bet their annual banquet didn't serve fresh clam chowder!

(Source: *The Chronicle-Herald*, Halifax, and R. T. Abbott)

**BEST ANSWERS** to the question posed at the St. Louis COA Convention: Why did the snail cross the road? To get away from the Indian who was trying to scallop him.

Stephanie and Margaret Rybicki — New York

## EMERALD GREEN SNAILS

by R. Tucker Abbott

If oceans are blue and forests are green, why aren't there more blue or green shells? Look through your collection and see how few shells are truly blue or bright green. Among the exceptions within the marine mollusks are the abalone, *Haliotis iris* Martyn, 1784 and the Beautiful Jewel Top-shell, *Prothalotia pulcherrima* (Wood, 1828), both from New Zealand.

Nearly all land shells that live on the ground are dull brown, and seem to blend in with the earthy colors of the forest floor. Brightly colored terrestrial snails are usually inhabitants of trees, and yet

emerald green is a relatively rare color, even in those snails living among green leaves. No one has ever found a solid green Florida Liguus or Philippine tree snail.

However, there are several exceptions, and on these pages are depicted four of the greenest snails in the world. Two of these species are truly green-shelled, but the other two have whitish shells that get their green appearance from the underlying soft body of the snail.



from the Compendium of Land Shells — Abbott

Best known of the green tree snails is *Papuina (Papustyla) pulcherrima* Rensch, 1931. It is an abundant species living very high in the tall trees in certain parts of Manus Island, northeast of New Guinea. The 1-inch long shell was put on the U.S. endangered list, although only the destruction of their habitat is endangering their existence.

## GREEN SNAILS

by R. Tucker Abbott

Although its internal soft parts give the Aphrodite Crystal Snail a leafy-green coloration, the inch long shell of *Crystallopsis aphrodite* (Pfeiffer, 1859) is a translucent whitish. A thin, pale straw-colored "epidermis" covers the shell. This common snail is found on low bushes on the coastal plains of several of the Solomon Islands. The green is due to chlorophyll obtained from the leaves upon which the snail feeds.

from the Compendium of Land Shells — Abbott



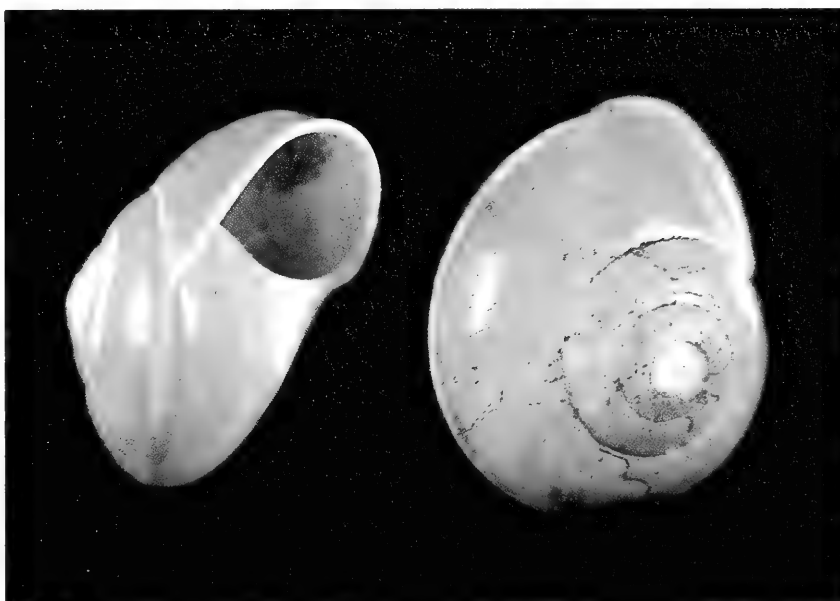
The Puerto Rican Green Ear Snail, only an inch in length, carries a fragile, transparent shell buried in its green and yellow soft parts. *Gaeotis nigrolineata* Shuttleworth, 1854, belongs to the family Amphibulimidae, a group of arboreal snails from South America and the Antilles. The animal is variable in color pattern, sometimes being spotted or lined in black (hence the name *nigrolineata*). The Green Ear Snail lives in the high mountains throughout the western part of Puerto Rico, usually on broad-leaved palms and banana plants.

photo by Charlotte M. Lloyd



Gabb's Emerald Helicina, *Helicina gabbi* Crosse, 1873, is a half-inch jewel from the high mountains of Santo Domingo on the West Indian island of Hispaniola. Like other similar species in this genus of ground- and bush-dwellers, it has a calcareous or shelly operculum that seals off the entire aperture of the shell. This prosobranch snail has separate sexes, and reduced gills and radular teeth not unlike those of the marine nerite snails.

from the Compendium of Land Shells — Abbott







### SHELLING IN YAP

by Charles E. Bowen\*

Yap, the land of stone money, lies some 6,300 miles southwest of Los Angeles at 10° north latitude (above New Guinea). Although it is only 450 miles from Guam and its modern high rise hotels and traffic congestion, Yap is developing at a much slower pace. Some Yap natives display the traditional values and customs of Micronesia — loin cloths, bare breasts, woven purses and bare feet — while others wear western dress and drive modern compact cars.

The island of Yap is actually composed of several smaller islands connected by short bridges. Although mangroves prevent easy access to much of the reef, some areas are conveniently open to direct entry. Land is privately owned and a source of pride to the owners, so one needs permission from them to cross their property and enter the reef. Unlike other islands in Micronesia, one can walk or snorkel along the reef flat to the fringing reef since the warm, clear water is only a few feet deep all the way across. Low tide exposes large areas of shell habitat.

In shallow water, I found large numbers of common cowries, augers and cones. Many of the smaller specimens were occupied by hermit crabs, but a surprising number were still in fine condition. Unfortunately, on this first exploration, I found no abalone, a principal reason for my trip to Yap.

There were no dive shops on Yap then, and at first I did not know this. My reference guide throughout Micronesia, *Micronesia Handbook* by David Stanley, mentioned that diving could be arranged through a certain Joseph Tamag, the manager of one of Yap's two hotels. Arriving in Yap, I contacted Mr. Tamag, who said he would try to accommodate me.

A day later I received a call from Gabriel, an employee of Mr. Tamag. Gabriel, a Yapese from the island of Satawal who was educated in the USA, would guide me during my underwater excursions. He was a little vague about details. The next day I was to learn why: Gabriel had no equipment!

Equipment is no problem for me because I travel with everything but the air tank, but we had to equip Gabriel. We borrowed diving equipment from Dr. Uwate, chief of the Marine Resource Management Division, and tanks at the Protestant Church where there is an air compressor. We were at last ready to go, but for one small problem: the boat we were going to use belonged to a group of native trochus divers who had to empty it of the previous day's catch, several hundred *Trochus niloticus* Linné, 1767.

Finally, eleven of us piled into the aluminum 19-footer equipped with a 25 h.p. outboard. Just outside the harbor entrance, past the fringing reef, the natives free dived while I got ready to search for abalone. Soon a number of reef fish appeared in the boat, taken by the simple iron spears of divers equipped with masks but no snorkels or fins.

During our two dives that day, we saw why they got so many

trochus shells — they were everywhere, though the same could not be said for haliotids. This was not totally unexpected since Gabriel, who was familiar with abalone from his stay in California, said he had never seen them in Yap.

Perseverance paid off. We eventually found several abalone shells, but no living animal. All five shells that we found were easy to identify as *Haliotis ovina* Gmelin, 1791, comparing closely with those found at other islands in the Western Pacific. The next morning a look at Yap survey reports at the Division Office indicated a *Haliotis* species was present on Yap.

All too soon it was time to leave this island of contrasts and head for my next island adventure, courtesy of Air Micronesia. I knew I was going to miss the natural beauty of this tropic island, its clean air, warm water, blue skies, plethora of green plant life, many shells and slower-paced lifestyle. But I was sure I wouldn't miss one thing: the ubiquitous chewing of betel nut and its inevitable residue.

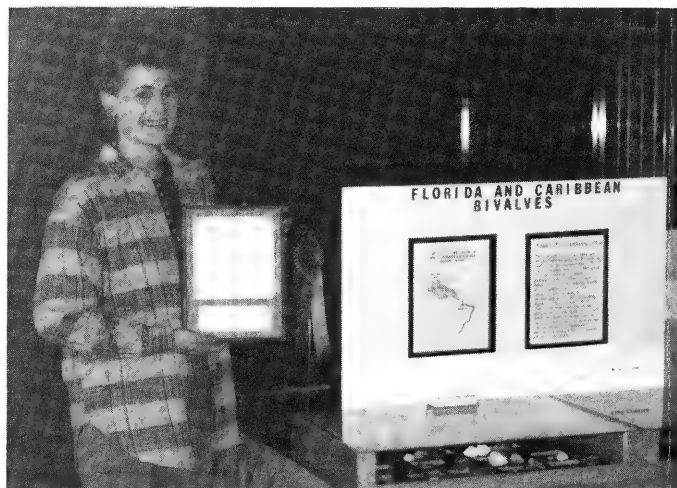
\*Dr. Bowen is the recipient of a COA grant to assist in his research on the Haliotidae. Chemistry Dept., California Polytechnic University, 3801 W. Tempe Ave., Pomona, CA 91768.



### COA TROPHY WINNERS AND THE WINNER IS . . . BIVALVES!



Gene Everson receiving his COA Trophy from Don Dan for his winning exhibit, "The Bivalves" at the Crown Point Shell Show, September 19-20, 1987.



Barbara Barfield and her COA Trophy beside her winning exhibit, "Florida and Caribbean Bivalves" at the Gulf Coast Shell Show of Panama City.

## Bea's Babies: THE CANNIBAL SNAIL

by Bea Winner\*

Order: Stylommatophora

Family: Oleacinidae

Genus: *Euglandina*

Species: *rosea* (Ferussac)

**Geographical Range:** Native to South Carolina, Alabama, Florida, Mississippi and Louisiana. Introduced to Oahu and Mauritius to eradicate *Achatina fulica*, with negative effects on native snail populations.

*Euglandina rosea* is quite common in Florida. An active predator which feeds on other land snails, it is capable of eating a snail as large as itself, and will prey upon snails in its own genus. The shell is thick, pinkish to tan in color, and has prominent growth lines. Lengths vary from 50-60mm.

The snail I had under observation laid 16 white, calcified, shelled eggs on April 3. The ovoid eggs measured 5mm at the major axis. They possessed a large yolk, a necessity for developing young sufficiently to fend for themselves when they emerge. On May 9 the eggs started to hatch.

There are over sixty families of land snails and 30,000 to 60,000 species. All land snails are hermaphroditic and reproduction in some species is rather complicated. Reciprocal mating is common, because they have both male and female gonads and can produce both eggs and sperm. There is a joint, reciprocal transfer of sperm



packages called "spermatophores." They are stored in "spermatheca," special receptor sacs in the body of the snail. It has been reported that storage in the spermatheca for a period of time is necessary for sperm to make the eggs mature fully. Some land snails are capable of self-fertilization. Courtship is usually long in land snails.

\*Beatrice Winner is the author of a book on reproduction and eggs of mollusks, A Field Guide to Molluscan Spawn, E.B.M., 1987.



Photos by Charles Glass

Figs. 1-3. A 93mm *Naquetia fosteri*, Foster & Glass Collection, a paratype AbS 85-1045, SCUBA in a narrow cave in 50m at Coral Beach, Eilat; and a 94mm specimen, AbS 86-037, at night in 30 m on sloping coral drop-off, same area. Figs. 4 & 5. A 96.5mm *Naquetia annandalei* in the Foster & Glass Collection, AbS 84-237, deep water tangle nets in the central Philippines.

## NAQUETIA FOSTERI D'Attilio & Hertz: A New Muricid from the Red Sea

by Charles Glass

In the Veliger, Vol. 30, 2: 190-195. 1987, Anthony D'Attilio and Carol M. Hertz described the new species, *Naquetia fosteri* from the Gulf of Aqaba off Eilat, Israel in the Red Sea. In the paper, the authors compared their new species to *Naquetia annandalei* (Preston, 1910) and *N. trigonula* (Lamarck, 1816).

In *Murex Shells of the World* Radwin & D'Attilio, through lack of adequate material at the time, treated this taxon as *N. annandalei*. D'Attilio was not happy with this solution, and when we received several exceptionally fine specimens of this rare taxon from the Red Sea, they confirmed his suspicion of its distinctiveness.

The type locality of *N. annandalei* is the Bay of Bengal, but most currently available specimens of this once rare species come from the Philippines. These have generally been misidentified as *N. barclayi*, a related species known only from a few specimens.

*N. fosteri*, which attains a length of 95.4mm, is a much larger species than *N. trigonula*, which attains a length of 55.5mm. It is a more slender shell than *N. annandalei* with a width-length ratio of 0.384 compared to 0.419 for the latter. Among the other differences are the presence of ten strong spiral cords on the body whorl and canal, with no microsculpture, instead of 14 nodose cords, and extremely fine microsculpture on *N. annandalei*.

## CUBA'S NATIONAL LAND SHELL

by Alfredo Romeu, M.D.

The Cuban genus *Polymita* has a prominent place among the world's most brightly colored terrestrial snails. The simple designs and beautiful colors have for over two hundred years been a source of inspiration for artists and collectors.

Uniquely restricted to the eastern province of Oriente, these snails have appeared on the postage stamps of Cuba and gained popular recognition as Cuba's national land shell. *Polymitas* abound on bushes and trees in the more remote, mountainous areas of this easternmost end of the island.

*Polymitas* feed mainly on lichens and fungus adhering to the branches of bushes and small trees that grow in partially shaded areas. Evidently, the type of food influences the intensity of color in the shells of some subspecies and forms. The shells of snails living on guava trees, the hicaco or coco-plum and other native plants that contain high amounts of tannin are very dark in color.

Like other air-breathing, pulmonate snails, *polymitas* are monoecious hermaphrodites with each individual possessing both male and female organs of reproduction. During mating there is a mutual exchange of sperm. In rare instances, self-fertilization may occur. The snails are more active during wet periods, particularly from July to October. The snails descend to the ground and lay small, pea-sized white eggs in the moist humus soil. Hatching of the tiny, transparent shells occurs within two weeks, and by the second month they have acquired their characteristic color bands.

Specimens of these colorful shells were brought back to Europe by early explorers. The Italian priest, Buonnani, in 1681 illustrated specimens from Oriente, but it was not until 1778 that the Austrian conchologist, Ignatius von Born, christened, and in 1780, figured the first species, *Helix picta*. He also named the Guantanamo species, *versicolor*, at the same time. The generic name, *Polymita*, was not created until 1837 by the Dane, Henrik Beck. The genus is placed in the subfamily Cepolinae of the family Helminthoglyptidae.

Although most malacologists readily recognize six species of *Polymita* today (*picta* Born, *versicolor* Born, *muscarum* Lea, *venusta* Gmelin, *sulphurea* Morelet and *brocheri* Pfeiffer), there are some that question the distinctiveness of the many named forms. Indeed, many of the color forms that occur within the same colonies are probably minor genetic variations, as found in petunias and zinnias. The leading student of *Polymita* was Dr. Carlos de la Torre, a distinguished zoologist and university president in Havana. He amassed a large collection and many named forms. His main collections are at Harvard's Museum of Comparative Zoology and at the United States National Museum in Washington, D.C.

*Polymitas* are still relatively common in some remote areas, but the encroachment by man's activities in housing, farming and mining has almost eliminated the last refuges of these beautiful land shells. But deep in the hearts of all Cubans will remain this little jewel of the Caribbean.

### Some references to *Polymita*:

- Jacobson, Morris K., 1974. Cuban Land Snails. Of Sea and Shore, 5(1): 16-18, 4 figs.  
 de la Torre, Carlos, 1950. El genero *Polymita*. Mem. Soc. Cubana Hist. Nat. 20(1): 5-20, pls. 1-11.  
 Lippincott, J. W., 1953. To Cuba for Tree Snails. Frontiers Magazine (Philadelphia), 18: 1-4, figs. 3-6.  
 Moreno, Abelardo, 1950. Estudio Anatomico del Genero *Polymita* Beck. Mem. Soc. Cubana Hist. Nat., 20(1): 21-35, pls. 12-22.  
 Parkinson, Brian, Jens Hemmen and K. Groh, 1987. Tropical Landshells of the World (Wiesbaden). 279 pp. (*Polymita*, pls. 10, 11).  
 Pilsbry, Henry A., 1889. Manual of Conchology (series 2), 5: 52-56, pls. 13, 15, 19.



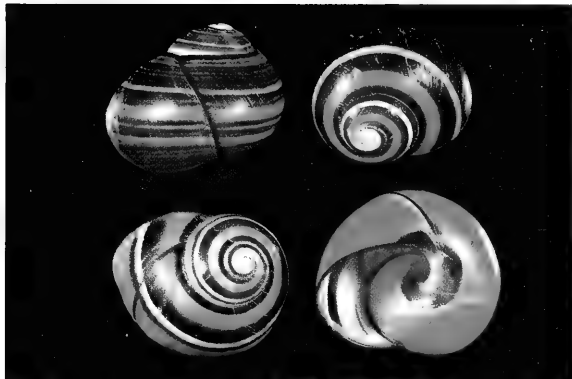
from The Compendium of Land Shells — Abbott

These stunning inch-long Painted *Polymitas* are only one or two of the twenty minor color forms that grow in Cuba. These paratypes of *Polymita picta* (Born, 1778) color form *iolimbata* Torre are from de la Torre's collection.

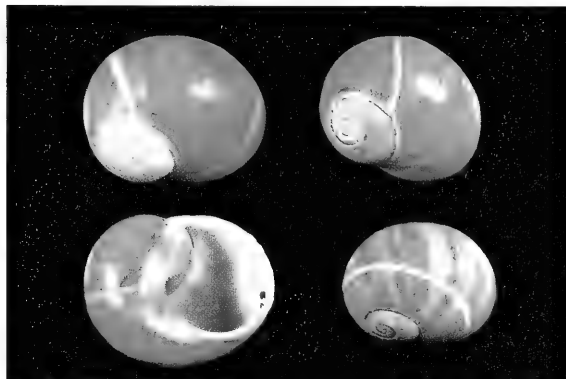
## CUBAN POLYMITAS SPORT OVER 40 COLOR FORMS

From the semi-desert conditions north of Guantanamo Bay to the rain-drenched hills beyond Baracoa, dozens of color forms live on Cuban tropical trees.

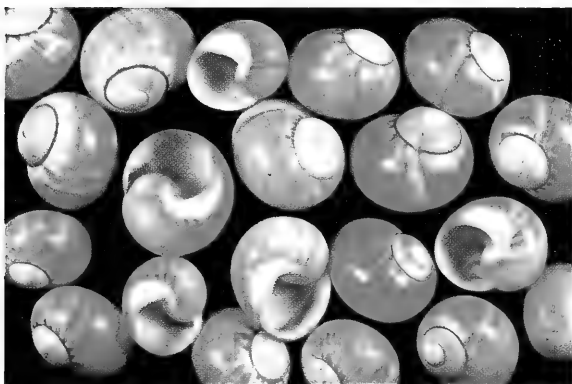
*Photos from Abbott's forthcoming Compendium of Land Shells*



Best known is the typical inch-long Painted Polymita, *Polymita picta* (Born, 1778). It is the largest and most fragile of the Oriente species. Professor de la Torre described this quite common form as *iofasciata*. Note the dark, wide border around the base of the columella.



In the flat, high plains to the northeast of Santiago de Cuba one can find this bright yellow and red striped species, *Polymita venusta* (Gmelin, 1791). They live 10-25 feet above ground, and are more active at night. An all-russet-red form occurs in the Sierra Maestra.



The smaller and thicker-shelled Sulfur Polymita, *Polymita sulphurea* (Morelet, 1849), exhibits many color variations within the same colony. The original form was completely yellow. These are color types of the color form *flammulata* Torre, 1950. All natural size.



The hills along the southern coast of Oriente Province are the home of the Sulphur Polymita. These delicately-hued Lilac Polymitas are paratypes from the original lot described in 1950 by Dr. de la Torre as *violacea*. Note the oblique "flames" of color in this species.



The Fly-specked Polymita is characterized by a pinkish base and minute blackish fly-specks scattered over the outside of the shell. Although *muscarum* Lea, 1834, is the usual name applied to this species from Banos, Cuba, the earlier name *globulosa* (Férussac, 1821) should probably be used.



Brochero's Polymita from the Cape Maisi region of Oriente was named *brocheroi* after General Gregorio Brochero by Pfeiffer in 1864. These are paratypes of Torre's color form *questana* which has a pink columella. The form *ovandoi* Torre, 1950, has yellowish-tan axial stripes.



## PASSION CUBANA

by Lynn Scheu

When Alfredo Romeu and his wife, Esther, fled Cuba to make a new life in the United States in 1969, he had already sent his sons to safety in Miami. But almost as dear to him were the collections he was forced to leave behind — chief among them an extensive collection of Cuban land and tree snails.



Interested in nature since early childhood, he found the rich and colorful molluscan fauna of Cuba fascinating, and began to spend long hours observing and collecting land shells. Marine mollusks interested him, but not so much as the brilliant Cuban terrestrial snails, which he has collected with a passion his whole life long. As a physician in Batista's anti-Castro army, he was stationed in Oriente Province, eastern Cuba, where he collected hundreds of the elegant, stylized Cuban Tree Snails, *Polymita picta*.

When Castro came to power, Dr. Romeu and his wife found themselves in a difficult political position. After years of harassment, even imprisonment, they won their release from Cuba. Unable to take anything with them, the Romeus left his collections in the care of friends.

The Romeus are a medical family. Alfredo and Esther met in medical school when they were 19. He was a dermatologist, she a pediatrician. When the Romeus came to the United States, 40 years old and unable to speak any English, they were determined to make a new life for themselves. The only opening they found was in an Ohio hospital for the criminally insane. They took new degrees in psychiatry, and now work at the Northeast Florida State Hospital in Macclenny. Their sons are a doctor and dentist.

A confirmed collector, Dr. Romeu has built collections of cigar bands, coins, butterflies, stamps, and of course shells. A few at a time, some of his collections have filtered home to him, via immigrant friends. And he has continued his collection by trading and buying around the world, and self-collecting. His outstanding land shells have won many awards for him, among them, the William J. Clench Award at Jacksonville in 1986, and the 1987 and, now, the 1988 COA Trophy at the Astronaut Trail Shell Show in Melbourne.

But a love for land shells is only one aspect of this remarkable man. His passion for nature also manifests itself in his interest in exotic birds — live cockatiels, macaws and pheasants, which enliven his home with color and sound, and bird prints on his walls. A koi goldfish pond and lush flowers surround his home. And he is a member of the Delta Society, which researches the bond between people and their living environment. Of this bond, Alfredo Romeu is living evidence.

## ABOUT THOSE SHELL CLUB PINS

by Jean Cate

The discussion of shell club pins in the December issue of *American Conchologist* reminded me that such emblems were unknown in the United States until 1967, a year after Crawford and I went to Australia. Spending several weeks there, we had the pleasure of visiting shell clubs on both coasts, in every case noting that members faithfully wore special emblems to meetings — even the men, which seemed unusual to us. They called them "badges." While walking down a street in almost any sizeable city, we often noticed men wearing four or five different badges on their lapels, evidently representing all sorts of societies.

On our return home it occurred to us that the Sanibel-Captiva Shell Club might like this idea too, so we contacted the Australian badge-makers. With help from a shell club committee and further correspondence with the manufacturers, we arrived at an attractive, representative design featuring the bright blue Sanibel-Captiva sky above a sunny beach-colored base, with a *Scaphella junonia* dividing the two.

The next step was to select how we wanted them made up. Since Australians didn't recognize the term "Bolo Tie," we settled for pins and key rings, with a choice being offered to new members of the club. They were not to be given, traded or sold to non-members. I don't know whether that rule holds true today, but I still like the idea of membership as a prerequisite to wearing a club's emblem — something unique to that club alone.

Soon after our pins and key rings arrived, the idea seemed to spread; throughout this country other club members began wearing handsome pins displaying their own logos. It pleased us to think we might have played a part in spreading emblems of loyalty among other proud shell clubs in this country. Walter Sage soon sent us one of his club pins, and I believe the Louisville Shell Club may have been one of the first to follow in this tradition. To my knowledge, we don't have club emblems on the Pacific Coast, but I still treasure mine from the Sanibel-Captiva Shell Club, some twenty years later.

If some other shell club had its own wearable emblem prior to 1967, I had not heard of it. In that case, my apology is due to its members.



Coventry Junior High Shell Club 1987-88.

## COVENTRY CONCHOLOGISTS

by Kay Peterson

There's been a lot of discussion about which is the oldest shell club in the nation. But we know for certain which is the youngest American shell club — youngest in the average age of its members, that is — The Coventry Junior High Shell Club of Coventry, Rhode Island. We'll let the club founder, COA member and Coventry teacher, **Kay Peterson**, tell you about her unique group of shellers.

The purposes of the Coventry Junior High Shell Club are four fold: to introduce young people to a scientific hobby, familiarize them with various types of shoreline, promote conservation and teach responsibility within an organization.

**A Scientific Hobby:** At informal weekly lunch meetings I bring specimens of one family or genus. We note distinguishing features, variations within a genus, distribution, habitat and life history. We take evening field trips to adult shell clubs in neighboring states, visit private or museum collections, or shell shops. We have a shell library purchased with a PTA gift.

**Field Trips:** In good weather we take Saturday trips to bays, salt marshes, ocean beaches or rocky areas, noting variations in fauna in differing habitats. During Christmas vacation we combine a party



Coventry Junior High Shell Club 1986-87.

with a beach trip, duration governed by weather.

**Conservation:** Visiting a shellfish processing plant and shell dump helps understanding of the commercial uses of shellfish, illustrates differences in faunal provinces, and gives access to deep-water species. On beach trips I teach conservation of animals, habitats and shoreline. We note wise or reckless treatment of public resources.

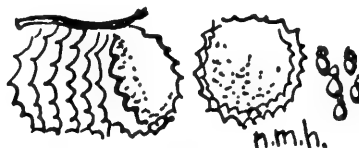
**Running the Organization:** Monday afternoon business meetings are chaired by the President, and a Shell of the Week is presented by a volunteer. The historian calls the roll and keeps the scrapbook, and our Curator manages hall cabinet displays. We also have an elected treasurer and corresponding secretary.

We discuss trips and projects (last year, we got Rhode Island to adopt *Mercenaria mercenaria* as our State Shell) and learn about conchology and collecting.

Some after school activities have included making cast-resin paperweights containing local shells, using hand lenses to find micromollusks in tide line sand from tropical vacations, and staging a "penny auction" of donated or purchased shells. This year we are stocking a salt-water aquarium with local fauna.

Whether the students go on to become adult collectors, bird-

watchers or rockhounds, or merely enlightened beachcombers and conservationists, whether they recall their first brush with Robert's Rules of Order, or merely the camaraderie of a beach party, I believe that the Shell Club will have been worthwhile.



### HMS SHELL AUCTION NEEDS YOU!

The Hawaiian Malacological Society will be holding its biennial Shell Auction, in combination with its Shell Show, a Lecture Series and Dealers' Bourse, November 10-13. They need our help to make the Auction a success. Send \$1-\$10 shells for sale and more valuable shells for auction. The proceeds from this sale support their excellent Scholarship Grant Program, which has distributed over \$30,000 in grants over the last decade. Please mail all donations to HMS, ATTN: Shell Show, P.O. Box 22130, Honolulu, HI 96822.

### SEA SLUGS AND CANCER

Mollusks are in the news again. It seems that sea slug toxin, produced in lieu of a shell as protection against predators, is also lethal to tumors. In the attempt to synthesize nudibranch toxin for use in live animal tests, researchers discovered that four of the poison's five key components are unknown compounds.

— from an article in Business Week, 11/16/87, p. 146.

**LARGE COLLECTION OF *LIGUUS* FOR SALE.** Over 1000 shells, all first quality specimens with complete data. For sale as collection only. P.O. Box 130243, Sunrise, FL 33313. Phone: 305-749-9858.

## THE LIFE OF A LIGUUS TREE SNAIL

by Archie L. Jones

One of the great natural inheritances still left to us in Florida are the myriads of colorful tree snails safely hidden away among the tall trees of the Everglades National Park and the Big Cypress National Preserve. At one time these painted beauties abounded in hardwood hammocks throughout south Florida and the Florida Keys. But ever-spreading civilization has eliminated much of their natural habitat, except in protected parks.

The life of a *Liguus* tree snail (pronounced: *lig-you-us*) is not always easy. Droughts (dreaded by most land snails), hurricanes, exceptionally long freezes, marauding birds and rodents, and land development are among the pressures on their shrinking population. Food, in the form of lichens and moulds clinging to wild tamarind and poisonwood trees in the Everglades, and to Jamaica dogwood and bastic in the Florida Keys, is a waning resource for their survival.

The feeding process is carried out by the rasp-like mouth part called the *radula*, which means "little file." From the end of the snout, the operating radular ribbon resembles the lapping tongue of a cat drinking milk. Snails eating a dead leaf on a still night may be heard eight to ten feet away.

Mating between adult snails occurs at the end of the growing season late in June through August. Courtship begins by an amorous snail climbing on the shell of another snail. Because they are hermaphrodites, each one containing both male and female sexual organs, there can be a mutual exchange of sperm between two individuals. Usually, one snail first plays the role of the aggressive

male while the other allows itself to be seduced. After one or two days of courtship, the actual act of copulation is completed in about one day. The sex roles are then sometimes reversed and mating may occur once more.

After one or two months, depending on the weather, the mature eggs are ready to be laid, usually upon the arrival of the first rainy spell. The snail leaves its tree home, descends to the ground, and digs a nest in the soft leaf-mould, usually at the base of a food tree. Into this pear-shaped depression the snail deposits from 15 to 50 eggs, each about the size of a garden pea.

Many times I have observed this operation in my Miami back yard where I have raised several now-extinct color forms. The eggs are laid at the rate of about ten each day until the nest is filled with eggs. Then earth and leaf mould are ploughed over to form a mat of camouflage.

The eggs remain in the ground throughout the long dry seasons until the warm rains of spring call forth the little newly-hatched snails. These emerge as perfect replicas of their parents, capable of self-support the moment they are hatched. It is a fascinating sight to watch 30 or 40 of these little fellows emerge from the ground, instinctively climb the nearest tree and immediately begin feeding. Mortality is high during the first month, primarily from drought and birds.

The young snails grow two or three complete shelly whorls the first season, another two whorls the second year, and by the fourth year they have reached their 3-inch adult size. By counting the an-

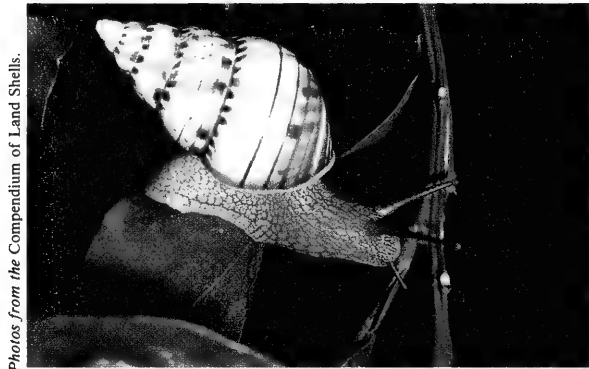
**LIGUUS (cont.)**

nual growth marks on the last whorl, one can determine the maximum age of an individual, sometimes as much as eight or nine years.

Every fall of the year the *Liguus* snails seek protected hibernation places in crevices of the trees, under loose bark and among dense vines. They seal themselves to the trees by secreting a sticky substance which hardens, forming what is known as an *epiphragm*, thus preventing the loss of precious body moisture during the dry

months of winter and spring. Whenever a warm rain occurs during winter, a few snails may awaken, unseal themselves and move about actively while the moist conditions continue.

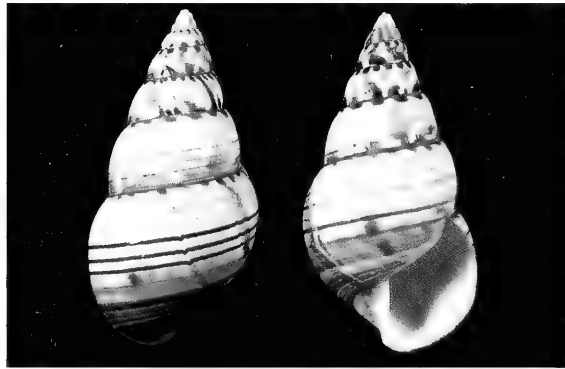
For the last fifty years I have tramped through the Florida Keys and Everglades in search of these fascinating little animals. Each year I learn something new about their habits. To me they are a symbol of the grand inheritance of our natural surroundings. Let us hope the *Liguus* tree snail will be here to inspire future generations of naturalists.



Photos from the Compendium of Land Shells.

This specimen of the False Painted *Liguus*, *Liguus fasciatus* (Müller, 1774) color form *pseudopictus* Simpson, 1920, was raised on an orange tree in the back yard of the famous *liguus* collector, Ralph Humes. Many rare forms have been raised and preserved in our Everglades National Park.

Photo by Ralph Humes

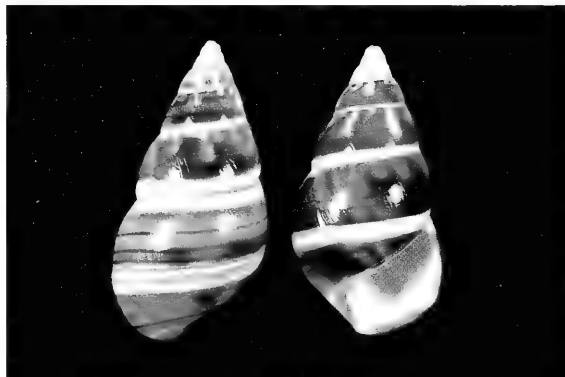


These three-year-old specimens of *pseudopictus* represent a race extinct in their natural habitat on Lower Matecumbe Key, but now thriving in the Everglades National Park. Most shells of this race lack the broad green band at the base of the shell.



Considered a subspecies by some experts, the Chestnut-banded *Liguus* displays many color variations. This one is from the Everglades, but those from Key Largo commonly have solid black or brown bands. This snail is foraging near the ground.

Photo by W. J. Weber

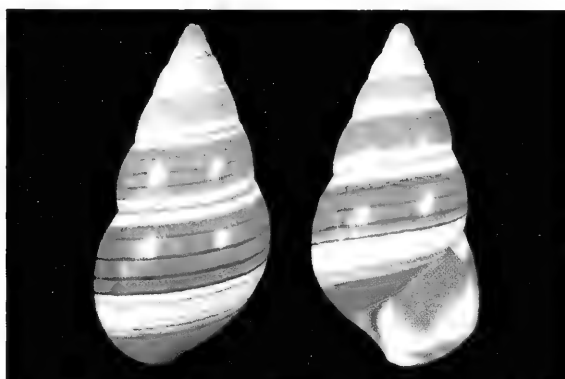


These two *castaneozonatus*, Pilsbry, 1912, or Chestnut-banded, *Liguus* came from the old Brickell Hammock within the city limits of Miami. One of Florida's first tree snail hunters, Charles Torrey Simpson, found 13 forms or "subspecies" at that locality.



The Rose-tipped *Liguus*, *Liguus fasciatus* form *roseatus* Pilsbry, 1912, got its name from the fact that its early whorls are rosy-pink. Sometimes the last whorls are banded with yellow and orange. This snail is re-aligning itself on a branch.

Photo by W. J. Weber



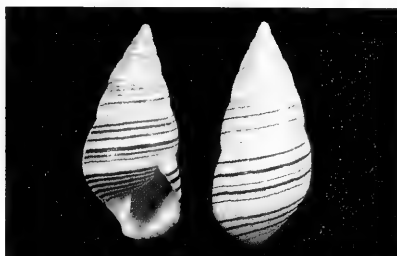
The Rose-tipped *Liguus* is one of the most widely distributed color forms on the South Florida mainland. Occurring on the Upper Florida Keys as well as in southwest Florida, it was found near Marco Island and the shell mounds of the Ten Thousand Islands.

## HOLOTYPE SPECIMENS OF CUBAN LIGUUS TREE SNAILS

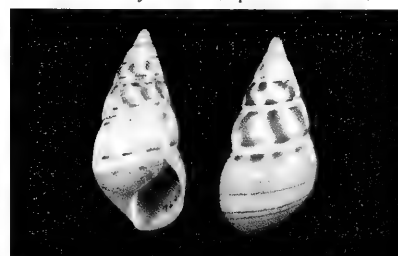
Photos from the Compendium of Land Shells.



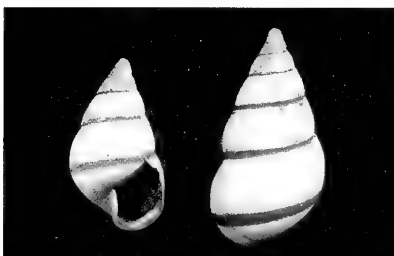
**Josefa's Liguus** (2.3") 5.9 cm  
*Liguus fasciatus* form *josefae*  
Guitart, 1945. Sierra de Cantu, Sancti Spiritus. Holotype specimen.



**Yellow-banded Liguus** (2.4") 6 cm  
*Liguus crenatus* *luteolozonatus*  
Guitart, 1945. Lomas de Banao, Sancti Spiritus. Paratypes.



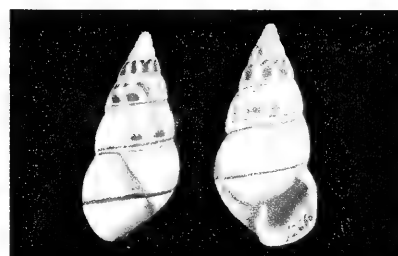
**McGinty's Liguus** (1.5") 4 cm  
*Liguus fasciatus* form *macgintyi*  
Clench, 1934. Mariel, Pinar del Rio, Cuba. Holotype on right.



**Noble Liguus** (1.5") 4 cm  
*Liguus* f. form *nobilis* Clench & Aguayo, 1932. Near Cabanes Bay, Pinar del Rio. Holotype on right.



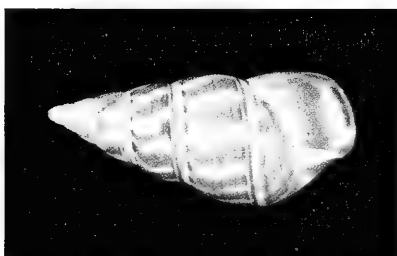
**Organ Liguus** (2") 5 cm  
*Liguus* f. form *organensis* Clench, 1934. El Queque, Vinales Valley, Pinar del Rio. Holotype on right.



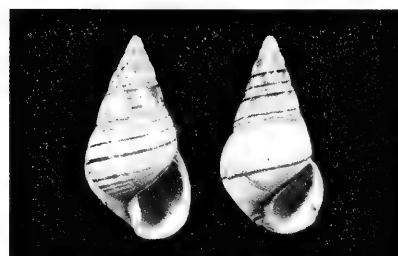
**Pallid Liguus** (1.8") 5 cm  
*Liguus* f. form *pallidus* (Swainson, 1821). Cayo Magueyal, Pinar del Rio, Cuba. Common on trees.



**Isle of Pines Liguus** (1.5") 4 cm  
*Liguus* f. form *pinarensis* Clench, 1934. Punta del Este, Isle of Pines, Cuba. Holotype on right.



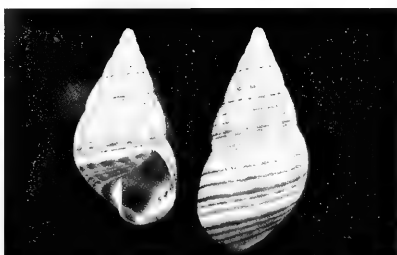
**Holy Spirit Liguus** (1.7") 4.7 cm  
*Liguus* f. form *sanctispiritensis*  
Guitart, 1945. Tuinucu, Sancti Spiritus, Cuba. Holotype on right.



**Cut-lip Liguus** (2.5") 6.5 cm  
*Liguus* f. form *sisilabre* Nodal, 1947. Nuevitas, Camaguey. Upper end of lip notched. Rare.



**de la Torre's Liguus** (2.5") 6.5 cm  
*Liguus* f. form *torrei* Clench, 1934. Punta del Este, Isle of Pines, Cuba. Holotype on right.



**Green Cuban Liguus** (2.5") 6.5 cm  
*Liguus* f. form *viridis* Clench, 1934. Central Soledad, Cienfuegos, Cuba. Holotype on right in Mus. Comp. Zool.



**Golden Cuban Liguus** (2.5") 6.5 cm  
*Liguus fasciatus* form *xanthus*  
Clench, 1934. San Nicholas, Havana Prov., Cuba. Holotype on right



## PRESIDENT'S MESSAGE

In this issue, you'll be seeing double . . . double savings in early registration for the **Sweet Sixteen COA Convention** in **Ft. Myers**. Complete and mail the enclosed pre-registration form before June 20 and save \$5. Better yet, mail in your Early Bird Registration package form before June 1 and save another \$5. Don't pass it up. Why pay more than you have to?

**DEALERS**, what would we do without you? The annual **COA Dealer's Bourse** gives us joyous hours of browsing and purchasing your wares. And it gives us the opportunity to meet each other and discuss shells. We love it!

But we need help in identifying and reaching all of you. If you are a **COA** member in good standing, a retail dealer of specimen shells or shell related items and have a Federal Employee Identification Number (EID#) or similar business operating number, you are eligible to participate in our **COA's Dealer's Bourses**. If you have not received a Dealer's Bourse agreement form for the convention at Ft. Myers, please write or call me at (813) 392-3747. We don't want to miss any of you.

**SPEAKING OF CONVENTIONS**, it is a pleasure to announce that the **Astronaut Trail Shell Club, Melbourne, FL** has tendered a bid to host the 1990 **COA** Convention. But we still need a host club for 1989. If your club is interested, but somewhat reluctant to undertake the task because of club size, financial considerations or insufficient expertise, let the **COA** slide presentation lay your fears to rest. It and our handbook, "Everything You Wanted To Know About Hosting a Convention But Were Afraid To Ask," outline all aspects of hosting a successful convention. Wouldn't your club like to host the **1989 COA Convention**? Call or write me for more information.

**WE CROSSED THE 800 MEMBERSHIP HURDLE** by the end of 1987! YOU did it! Our membership for 1987 was 840, including 190 new members. Thanks a million to all of you who recruited a new member! I knew you could do it!

But we have to hold the ground we've gained! We still need 210 new or renewed memberships in 1988 to pass 800. So if you haven't done so already, send in your membership renewal today. This will be your last issue of **American Conchologist** until we receive it. And approach that friend whom you know will enjoy **COA**, and urge him to join us. Your help is vital to the strength and perpetuation of **COA**! **COA** can't spell **SUCCESS** without U!

Shellingly,  
Don

## GALLOPING GREMLINS!

In December 1987, we published a whole page of volutes without a credit. **Water Sage** of the American Museum of Natural History was the mystery contributor. The Gremlin stole the tiny snip of paper with his name on it, in revenge for the exposé Walter did on Gremlin antics in the September issue.

The **Shell Store** ad was, as usual, botched up. We've given up on that one and asked the **Lipes** for brand new ad copy for this issue. We think the old ad was jinxed.

Fossil nomenclature can be confusing enough without our help. **Richard Kirk's** fossil article in June, 1987 contained these caption errors: Page 3, upper right: author of *C. madisonia* is Say. Page 3, lower right: The large volute on the left is the *Scaphella* species from Virginia. The spindle-shaped volute beside it on the lower row is the *Scaphella* species from Maryland. Page 4, left: top row, right is *Ptychosalpinx altilis*. Page 4, right: shell on right is *Buccinofusus parilis*. Page 5, upper left: shell second from right on lower row is *Scalaspira strumosa*. Page 5, lower left: shell second from left, upper row is *Crucibulum grandis* also. Page 5, right: shell fourth from left, lower row is *Surcula rotifera*.

**BEST ANSWERS** to the question posed at the St. Louis **COA** Convention: Why did the snail cross the road? He needed to get to the Express-Car-Go.

Stephanie and Margaret Rybicki — New York

## BOARD TALK

From **Vice-President ALAN GETTLEMAN**: Most of our affiliated shell clubs have a **COA** representative, a liaison between **COA** and your club. The Club Rep. disseminates current information, and receives feedback from your club members on how **COA** can be an asset to your club. If you don't have a **COA** Club Rep., ask your club to appoint one. If you wish to know the name of a club representative or point of contact for any of our member clubs, please write me a note. Let your **COA** representative know of your ideas concerning **COA**.

At the spring shell shows you may note a new item, a table with a sign saying, "Ask me about the Conchologists of America." We have asked the clubs to have their **COA** members assist us in spreading the word about **COA** and its activities. If your show this spring has a **COA** booth, volunteer your time to your club rep. and let people know you are part of a proud international conchological organization.

Is your club one of the several U.S. clubs that are not yet members of **COA**? Urge them to take this opportunity to support the hobby and join our growing conchological network.

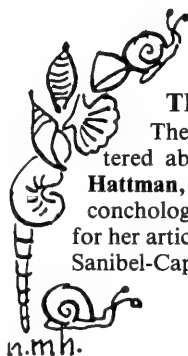
From **Shell Show Chairman DONALD DAN**: On the weekend of June 18-19, at Lutry, Switzerland, the **Salon International du Coquillage** will award its first **Conchologists of America Grand Trophy**. **COA** wishes to extend a warm welcome to this newest addition to the growing family of shell shows that award the prestigious **COA** Trophy. Anyone wishing information about the **Salon International du Coquillage's** Seventh Annual Show may contact Dr. Ted Baer, CH-1602, La Croix, Switzerland.

From **COA Treasurer, WALTER SAGE**: Many thanks to those members who have sent in their 1988 dues payments. Those of you who paid twice will be credited for 1989 and notified before 1989 dues reminders are mailed out. At this writing, we still have approximately 200 members who haven't yet paid their 1988 dues. Please save us all time and expense by checking your records and sending your check TODAY!

## BACK ISSUES

A good supply of back issues of the **COA Bulletin** (now **American Conchologist**) is available from Bernie and Phyl Pipher, 1116 "N" Street, Tekamah, Nebraska 68061. The cost, including postage, is \$1.00 per issue prior to 1985, and \$2.50 per issue for 1985 and later. The numbers which will be most interesting and which contain the best articles on Conchology are those published from December, 1979 to the present. The **COA Bulletin**, prior to that date, was primarily a newsletter containing information about conventions. In fact, many of the early issues are brief, mimeographed fliers.

We would like to have a complete set of **Bulletins**, but Numbers 2 and 9 are missing from our archives. Can anyone supply us with a copy of either of these? If so, please send them to the above address.



## THANKS, NORMA!

The little stylized graphics you've been seeing scattered about our pages are the work of **Norma Merrill Hattman**, of North Fort Myers, Florida. Norma is an artist-conchologist who does silk screen graphics of shells. Look for her articles in the pages of the **Junonia**, publication of the Sanibel-Captiva Shell Club, of which she is a member.

## SHELLS IN PRINT

by Richard L. Goldberg

**TROPICAL LANDSHELLS OF THE WORLD**, by Brian Parkinson, with Jens Hemmen and Klaus Groh. Published by Verlag Christa Hemmen, Wiesbaden, W. Germany, 1987. 279pp, 77 color plates, 64 color fig. (2 maps). 198 DM = approximately U.S. \$125.

Over the past century, interest in terrestrial shells has waxed and waned. Almost 100 years ago, the eminent malacologist Dr. H. A. Pilsbry continued Tryon's second series of **Manual of Conchology** dealing with land shells. Between 1885 and 1926, in 28 volumes, he attempted to illustrate and discuss all of the known pulmonate species, one of the greatest undertakings on the subject to date.

Many hundreds of other papers on land snails have been published since then, but no popular work appeared until 1948 when Walter F. Webb, noted collector and shell dealer, produced **Foreign Land Shells from All Parts of the World**. This book quickly became the standard for collectors interested in land shells. Suffering from poor illustrations, it was, nevertheless, full of useful information, and did help to promote an interest in the terrestrials.

Since that time, collector interest in land shells has dwindled. Lack of well-illustrated and informative popular publications on the subject and a flood of spectacular new marine species have caused collectors to all but forget that land shells exist. So, in 1980, Brian Parkinson started compiling a general reference for collectors, to illustrate in color the beautiful and diverse tropical land shell fauna. To widen the scope of his project, he later collaborated with Jens Hemmen and Klaus Groh of West Germany, and others. Thus we now see come to fruition **TROPICAL LANDSHELLS OF THE WORLD**.

It would be unrealistic to believe that this book is, or could be comprehensive. After all, terrestrials make up, perhaps, 30 to 50 thousand species in the Phylum Mollusca. Instead, this book represents an introduction to the vast and beautiful land shell fauna of the tropics.

**TROPICAL LANDSHELLS** opens with an introduction to their origins, classification, anatomy and adaptation. Two maps illustrate the natural forms of vegetation, and the zoogeographical zones in the tropics. The book is organized around five geographical regions: Florida-Caribbean, Central and South America, Africa and Adjacent Islands, Tropical Asia and Tropical Pacific. In the next five chapters, authors with expertise in each area discuss the ecology, fauna and systematics of the species found in that region. These interesting discussions are uneven in emphasis because each chapter was written by a different author. Interesting photos of live snails and snail habitats make the book visually appealing.

After the five regional chapters, a chapter outlining tropical land shell systematics is also divided by regions. A list of the references used to compile this section is quite helpful for novices needing a better understanding of the systematics and help in organizing their collections.

The 77 color plates at the back are also grouped by regions. Some genera — *Helicostyla*, *Papuina*, *Liguus*, for instance — are well-represented, while others are not. Landshells, especially the helicoid-shaped species, are hard to identify from only one angle. Webb's book suffered from this defect, but, for the most part, **TROPICAL LANDSHELLS** has remedied it. Showing the peristome, its color, shape and dentition, would have been useful. Nonetheless, the plates are large, crisp, clear, and close to lifesize, picturing 1,000 shells of about 650 species. (Few species under one half inch are included.) No species descriptions are given.

The advanced collector may find the regional bibliographies helpful. Each lists references needed for further research of the five regions. Hundreds of citations are included. A general bibliography and index round out the book.

Some printing errors and misidentifications have crept into the book. Also, there will be some disagreement on the use of certain nomenclature in the chapter on systematics. The authors state at the outset that some workers may debate the validity of their placement and usage of some genera and subgenera. For example, they

use the Family Chondropomidae, instead of Annulariidae, Pomatiasidae or Chondropomatidae, the choices of other workers. But there seems to be no clearcut answer in a case like this. Australian malacologists differ on whether the large, beautiful species in the genera *Pedinogyra* and *Hedleyella* should be in the Family Caryoididae or the Subfamily Caryoidinae in the Family Acavidae. **TROPICAL LANDSHELLS** opts for Caryoididae. And the family Neocyclotidae is used instead of Cyclophoridae for New World Cyclophorid operculates. Again, there are no clear answers. Recently no one standard reference seems to be in use for land shell systematics. Current family revisions frequently overturn earlier systematics. In the United States, many museums continue to use the fundamental but outdated works of Wenz and Zilch for classification of their collections.

Errors and taxonomic disagreements aside, this wonderful and beautifully illustrated book should be included in the library of any collector with even the slightest interest in land shells. Its appearance definitely marks a resurgence of interest in land shells, and is, no doubt, only the first of a number of books on the subject of the terrestrials.



## WITH THE CLUBS

by Margarette Perkins

**Ed Blackwell**, an artist and member of the **Indianapolis Shell Club**, has designed a limited edition print of Linné to help finance this year's Midwest Shell Show. Anyone interested in more information may contact Carl Sahlberg, Indianapolis Shell Club, 7826 Camberwood Drive, Indianapolis, IN 46268.

**Lisa Mitchell**, of the **Palm Beach County Shell Club**, is investigating strange molluscan behavior. It all started with her observation of a *Pleuroploca gigantea* feeding on a *Strombus raninus*. Contact her at 140 Gull's Nest, Royal Palm Beach, FL 33411 to share similar experiences.

The **Greater Miami Shell Club's** field trip to Venice, Florida to look for fossil sharks' teeth netted Helen Jarrett a rare, 3-inch tooth of *Carcharodon megalodon*, an extinct 70' shark.

The **Sanibel-Captiva Shell Club** has adopted the newly-formed **Venezuelan Society of Malacology** as a sister club with the idea of exchanging information and trading specimens. The club also reports that on October 23, 1987 a bill became law prohibiting collection of more than two live shells per species per day in Sanibel city waters, up to 300' offshore.

In another conservation effort the Sanibel-Captiva Club has contributed \$500 to the Center for Environmental Education to adopt a mooring buoy for Florida's Key Largo National Marine Sanctuary. The buoys are a hopeful solution to the increasing problem of massive coral destruction caused by anchoring.

## AMU 1988 ANNUAL MEETING



The AMU 1988 Annual Meeting will be held in Charleston, South Carolina, June 19-26, 1988 at the Radisson Francis Marion Hotel. Three Symposia will be presented: Applications of Nucleic Acid Techniques to Molluscan Systematics, convened by Dr. M. G. Harasewych; Systematics and Evolution of Non-marine Mollusks, convened by Dr.

Robert Hershler; and History of Malacology, convened by Dr. W. Backhuys. Marine, non-marine and fossil field trips are being planned. For information, contact R. E. Petit, P.O. Box 30, North Myrtle Beach, SC 29582 (telephone 803-249-1454; evenings 803-249-1651).



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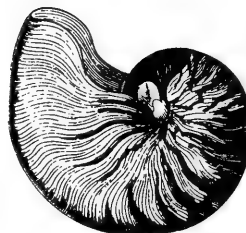


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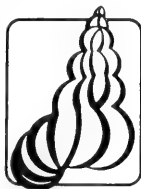
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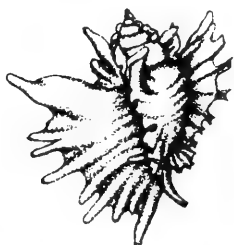
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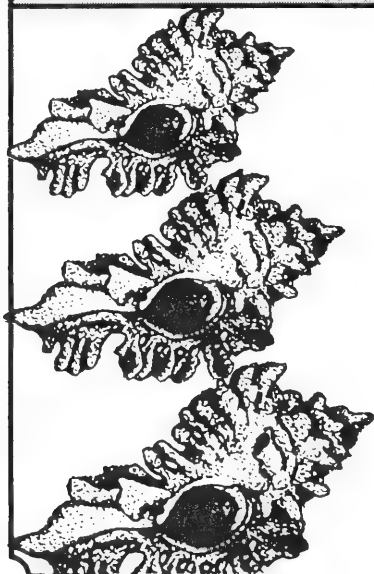
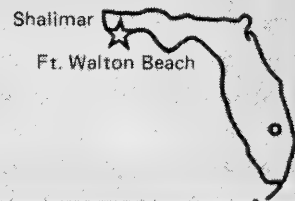
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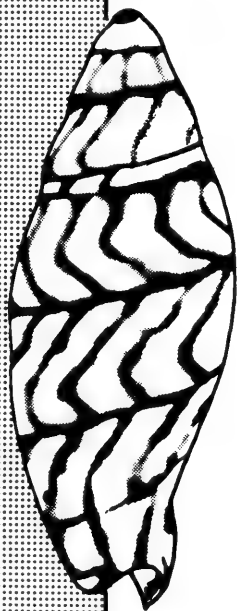
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The very satisfying result of these months of work was the paper, "A new species of *Vasum* (Gastropoda: Turbinellidae) from off Somalia," published in *The Nautilus*, vol. 102, no. 1, pp. 36-39, 6 figures. This new species, which reaches 110mm in length, was named for Adolphe Stephant, in recognition of his having obtained this and other mollusks from off Somalia. Other species reported by Captain Stephant from these trawling operations include *Strombus oldi* Emerson, 1965; *Cymatium ranzanii* (Bianconi, 1851); *Vasum cross-searum* (Souverbie, 1875); *Tudicula* [now *Tudivasum*, see p. 16, this issue] *zanzibarica* Abbott, 1958; *Volutocorbis rosavittoriae* Rehder, 1981; *Metula boswellae* Kilburn, 1975; and *Somalipecten cranmerorum* Waller. 1986.

## COA'S SWEET SIXTEEN CONVENTION IN JULY

June is "busting" out all over! And those vibrant vibes felt throughout the land are emanating from Fort Myers, Florida, where the 16th Annual COA Convention — "Sweet 16!" — takes place July 11-15, 1988.

Cordial invitations from Host Club SWFCS (Southwest Florida Conchologist Society) to COA members and non-members alike, are floating around on Florida sunbeams. If you have not yet mailed in your registration form, NEVER FEAR, there's still time to catch this golden opportunity to spend five wonderful days in a sheller's paradise.

COA WANTS YOU to have the pleasure of associating with fellow shellers; to learn more about shells, shelling and shellers; to enjoy the fascinating days seeing and hearing the wonderful programs by knowledgeable fellow COA-ers that will expand your horizons in the shell world.

All you have to do is register at the Convention or contact either one of the COA Co-Chairmen: **Gene Herbert** 813/731-2405, or **Al Bridell** 813/472-1637, and ask for a pre-registration form. They will bend over backwards to cooperate.

Once registered, you will discover everything is ready and in place for a momentous and memorable "Sweet 16." The hospitable **Sheraton Harbor Place Hotel**, 2500 Edwards Drive, facing the Yacht basin on the Caloosahatchee River, has suites and spacious rooms at low summer rates of \$55 plus tax, per night, for 1-4 occupancy. Daily rates are extended three days before and three days after the Convention. This is important if you are planning to arrive on July 10 for early registration and stay for the BONUS planned for July 16. Details to follow.

The Sheraton offers its guests free parking and provides free airport transportation to and from the hotel. Florida rental car rates are among the lowest in the U.S.A.

Registration begins at 10 AM on July 11. At 2 PM, Mayor Art Hamel welcomes COA-ers to the City of Palms, preceded by welcoming words from COA President, Don Young and SWFSC President, Gene Herbert. Then ensue . . . the much anticipated programs. At 6 PM, the WELCOME TO COA GET-ACQUAINTED PARTY begins at the hotel, followed by dining on the town. Fort Myers is famous for its fine restaurants and fresh seafood.

From Tuesday morning on, programs are scheduled, featuring **Gloria Scarboro** — "Shelling in Australia," **George Karleskint** — "Structure of a Seashell," **Al Chadwick** — "Collecting Shells in the English Isles," **Dr. R. Tucker Abbott** — "Virtues of Land Snails," plus outstanding programs by **Peggy Williams**, **Bop Lipe**, **Gene Everson**, **Richard Goldberg**, **Richard Forbush**, **Twila Bratcher**, **Jean Cate**, **Rob Masino**, **Hank Foglino**, **Lynn Funkhauser**, and panelists **Bill Hallstead**, **Betts Johnson**, **Dr. R. Tucker Abbott**, **Alice Anders**, **Mary McHarg** and **Georgette Laforet**.

Imagine a GET YOUR FEET WET LIVE SHELLING TRIP on Tuesday afternoon in beautiful Charlotte Harbor. Don't forget to pack your shelling gear and tie-on wading shoes. A glorious sunset dinner is promised at Bokeelia's Crab Shack.

The fabulous AUCTION, COA's only fund-raising affair, which helps finance the Grants Awards and publications programs is the event all Convention-goers will go for on Wednesday evening. The tour through the Thomas Edison Home on Thursday is a nostalgic delight, or, if you prefer, a tour of the Shell Factory.

Dutch-treat Continental Breakfasts will be available Tuesday, Wednesday and Thursday mornings. From 8:30-9 AM each day, you can exchange or sell your club's membership pins and T-shirts.

Friday, the final day of the Convention, will be active. In the afternoon there will be a Poolside Party with prizes. In the evening, a Social Hour with open bar precedes our "Christmas in July" Banquet with prime rib and all the trimmings. Our guest speaker, **Dr. Emily Vokes**, will take us "Shelling Around the World."

The BONUS on Saturday, July 16, is a guided Fossil Field Trip to the APAC Pits in Sarasota. Dr. Ed Petuch will be on hand to help identify your self-collected fossil shells. Collecting equipment and cold beverages will be available.

**NOW! DO YOU KNOW WHY YOU SHOULD ATTEND COA'S "SWEET 16" IN JULY?** It is the outstanding sheller's event of the year!

COA-ingly,  
**Mili Backus**, COA Publicity

## CALIFORNIA SEASHELLS PART XV

By C. Glass and R. Foster

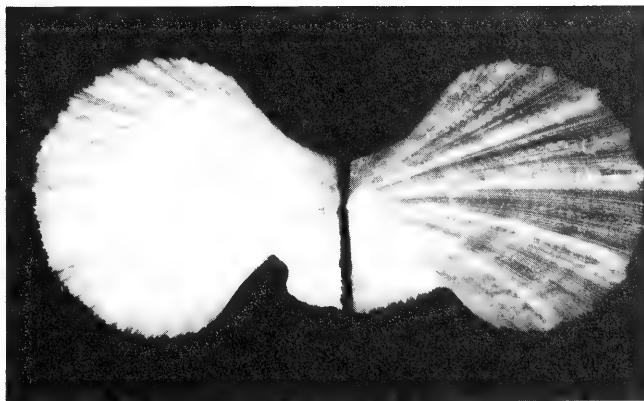
The Abbey Specimen Shells, Santa Barbara, CA

This uncommon member of the Pectinidae or Pecten family, the "Pacific Spear Scallop," virtually unknown in collections, had completely eluded us until recently when Glass's diving buddy, Ms. Juanita Wulff, found not one but two beautiful specimens in 100-110 feet of water, attached by the byssus to a low, rocky reef of southeastern San Miguel Island, in the Santa Barbara Channel Islands group. The shells are a lovely orange, one valve, the "right" valve, lighter in color.

The shells attain a width of 35-60mm., and the species has a reported range of Monterey to San Diego. The far more common subspecies, *Chlamys hastata herica* (Gould, 1850), a commercial scallop which ranges further north in Canada and Alaska, gets slightly larger and is mainly lavender-rose banded, the "right" valve whitish.

The common name "Spear Scallop" is simply a Latin translation of *hastata*, that is: hastate or spear-shaped, presumably referring to the fine spines on the ribs.

In the same area *Pecten diegensis* also occurs, but in patches of silty sand among the reef, unattached but half buried.



*Chlamys hastata hastata* (Sowerby, 1842)

### REFERENCES:

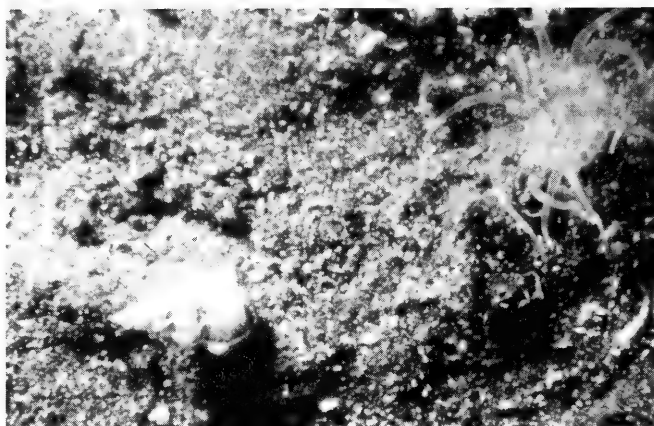
McLean, James H., 1969, revised edition, 1978, Marine Shells of Southern California, Los Angeles County Museum of Natural History, CA.





Photos by Wayne Harland

*Subcancilla edithreae*, Sphon, 1976, a Galapagan endemic. first discovered in 1971 on the Ameripagos Expedition.



*Epitonium replicatum* (Sowerby, 1844), an unusual Epitoniid, in dark lava sand covered in sea anemones.

## SHELL COLLECTING AND THE GALAPAGOS ISLANDS

by Wayne Harland

### PART I

The Galapagos Archipelago, lying some six hundred miles west of Ecuador, is comprised of fifteen major islands and many smaller cays and rock formations. The islands are volcanic in origin, and are characterized by brush-covered lava rock and cactus near the shoreline, rising up to more typical tropical growths in the higher elevations. Although the Galapagos is famous for extensive research in the higher life forms, there has not been as much popularity attached to the study of molluscan fauna.

William H. Dall, in 1928, documented an expedition to the Galapagos which spanned a two-year period from 1905-1906. The expedition was sponsored by the California Academy of Sciences. Many new species were found, as well as a representative sample of most of the known species of the time. Dall expounded primarily upon the landshells of the Galapagos, but remarked that these truly were enchanted islands.

In more contemporary times a collecting expedition, under a permit granted by the secretary of the Charles Darwin Foundation of UNESCO, traveled to the Galapagos in March, 1971. This expedition, called the Ameripagos Expedition, had the opportunity of using the facilities of the Charles Darwin Research Station while collecting. They had the luxury of using SCUBA equipment, surface-supplied air systems (hookah rigs) and the first-hand experience of the staff of the Research Station. They also met with Fritz and Carmen Angermeyer and Andre and Jacqueline DeRoy who had collected extensively in the archipelago and had contributed much to museum and amateur collections throughout the world. Twila Bratcher described this expedition in *Hawaiian Shell News*.

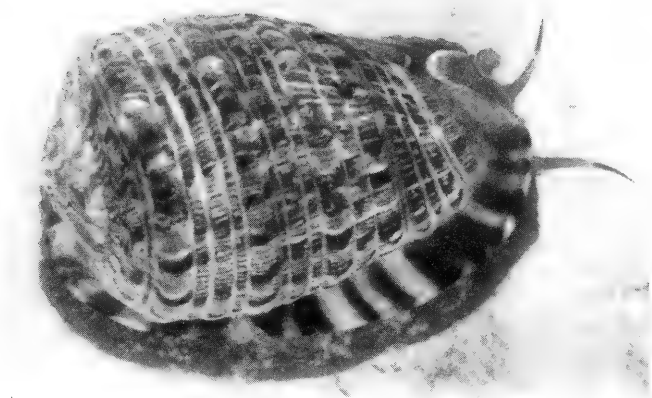
In 1985, Dr. Yves Finet produced a paper on the analysis of the molluscan fauna of the Galapagos. This paper attempted to determine whether a level of endemism similar to that of the higher life forms had occurred within the lower marine organisms. In his paper, *Preliminary Faunal List of the Marine Mollusks of the Galapagos Islands*, he analyzed the existing bibliography of available works on the species of the Galapagos, he reported upon his examination of Galapagan specimens in museums, and he discussed the results of an expedition he mounted with research assistance from the American Museum of Natural History. This F.N.R.S. Belgian Expedition, which had taken place in March through July of 1984, had collected on all the primary island groups. Finet's paper identified Galapagos specimens which had Panamic, Indo-Pacific, Peruvian, Californian and endemic distributions. It was this paper which formed the basis for

a new collecting expedition, or, more accurately, the first in a series of expeditions to collect and study Galapagos mollusks.

The architect of this new study is Dr. Michel Montoya of Costa Rica. Dr. Montoya has long been interested in the mollusks of the Central American area, and has collected extensively in both the Pacific and Atlantic Oceans. He has mounted several collection excursions to the Galapagos' closest island relative, Cocos Island, of Costa Rica, and has documented (in manuscript) a study of the molluscan fauna of that island group. It was while working on this species list from Cocos that Dr. Montoya researched the possibility of collecting in the Galapagos. After obtaining verbal approval from the International Galapagos Foundation, the Galapagos Park Director and the Ecuadorian government, Michel assembled his research assistants. Donald Shasky, M.D. of California has been collecting in the Panamic Province for some 20 years, and is responsible for erecting both generic and species taxa from California, the Baja Peninsula, and the Pacific coasts of Mexico and Central America. Ms. Kirstie Kaiser of Park City, Utah has participated on many of the Cocos Island trips and is a veteran collector of Panamic Province mollusks.



*Terebra plicata* Gray, 1834, a rare Panamic *Terebra*, more common in the Galapagos.



*Cypraecassis tenuis* (Wood, 1828), a world record 168mm specimen taken from sand at night, Jervis (Rabida) Island, Galapagos.

Gene Everson of Louisville, Kentucky also had participated in previous Cocos trips with Dr. Montoya, and introduced the collectors there to collecting at night using SCUBA equipment. It was through Gene that I was able to join the Galapagos Expedition. I have only collected in the Caribbean Province, and the thought of being permitted to collect in an area where EVERYTHING was new to me was overwhelming!

Shelling is totally prohibited in the Galapagos without a permit from the National Park and the endorsement of the Charles Darwin Research Station. Dr. Montoya had begun the request process to obtain our permit in 1986. He provided them with a specific list of objectives, a timeframe for the study, and an explanation of how the specimens and final reports would be filed. The request for permit was granted in December of 1987. We had only two major restrictions: first, we were prohibited from using tangle nets as a collection method, and second, we could not collect if there were any tourists who could see us. The National Park is very strict with all visitors to the Park, allowing no touching or disturbing of the wildlife, and underwater visitors are governed by the same rules.

Since we had not heard about the permit approval until December, and the trip was scheduled for February, we made plans with a commercial cruise operator who was fully dive-equipped to take us on our itinerary through the Galapagos Archipelago. We relied on information supplied by former collecting surveys, collection data supplied on museum specimens, data from the marine biologists at the Darwin Station, and the experience of our naturalist guide. When visiting the Galapagos, the National Park requires that all visitors be accompanied by a licensed naturalist guide who provides information about the Galapagos, floral and faunal species, and the history of the inhabitants of the islands. Our guide was also an accomplished SCUBA diver and was conducting research for a Master's Degree in Marine Biology. She was also familiar with the various habitats surrounding each island group and was able to describe to us the alternative environments to help us select each collection station. Dr. Montoya was particularly interested in seeing as diverse a selection of habitats as possible on this first trip to ascertain where to focus our further studies on subsequent trips.

The fauna of the Galapagos fall into three major classifications. First, **endemic species** — species which occur there and nowhere else; second, **distributed species** — species which occur within a distribution range including but wider than the area in question, and which have reached this area by their own natural methods of distribution; and third, **introduced species** — species which inhabit the area because of some external influence, usually man. Our project objective, first and foremost, was to document molluscan species and deter-

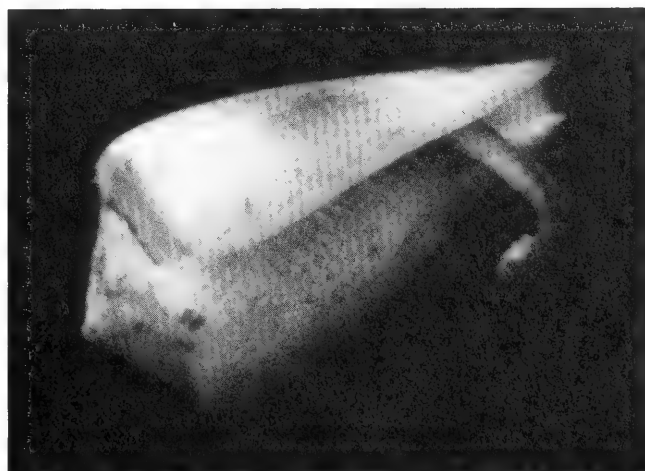


A pair of *Strombina lanceolata* (Sowerby, 1842) in the dark lava sand of Jervis Island, Galapagos.

mine whether they had been previously identified as having been found in the Galapagos. The second objective was to collect as many specimens as possible for distribution to research facilities, so that these facilities could examine in detail their similarities to related or ancestral species. With these broad objectives as a guideline, we set about determining which island would be best suited to exploration.

We conferred with our naturalist guide, and we decided to focus our daytime diving activities in areas where there are active coral formations. This is not an easy undertaking. In spite of being located directly on the Equator, the Galapagos Islands are primarily influenced by the Humboldt Current, which originates near Antarctica. Temperatures of this current are from 52-60° Fahrenheit, not ideal for coral formation, and certainly not comfortable for diving! According to our guide, there were some areas which were influenced by more temperate, tropical water temperatures, and these sounded considerably better to us. We consequently focused our night diving in sand areas, since most sand dwellers are nocturnal anyway. With our collection guidelines established, we set about formulating a cruise itinerary, with both shore visits to see the land-dwelling species, and dive sites. We also designated some shore-collecting areas where tidal pools were present to see if there was significant variation in the intertidal species. Fortified with a plan of action, we were ready to begin our cruise.

(continued on page 6)



*Conus purpurascens* Sowerby, 1833, one of the most common Galapagos cones; this piscivore was found feeding on a blue-striped goby.

In the September issue of *American Conchologist*, we shall take a seven-day collecting expedition in some of the most virgin collecting habitats in the world. We shall find world size records and unknown species, and experience the challenges of modern day technology operating in a less-than-modern environment.

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*Argonauta, International Journal of Malacology* is the publication of the Associazione Malacologica Internazionale, an Italian-based organization for shell collectors, "founded for the increase and diffusion of malacological knowledge," and based in Rome, Italy. *Argonauta* is a very attractive color publication in both Italian and English, published three times a year. Recent numbers carried extensive articles on Haliotidae, Marginellidae, Nautilidae and Pectinidae. For more information, write Roberto Ubaldi, A.M.I., Casella Postale — P.Q. Box 45 00125 Acilia (Rome) — Italy 06/6057778.



Photos by Carl Sahlberg

*Conus mappa trinitarius* Hwass in Bruguière, 1792.

## *Conus mappa trinitarius* Hwass in Bruguière, 1792

by Carl Sahlberg

The first week of November, 1987, Kevan Sunderland and I flew to Caracas, Venezuela and then to Isla Margarita. Margarita is a rather large island a short distance off the coast of Venezuela and a part of the continental shelf of that country.

Kevan and I have gone on several trips together and have had great success in collecting shells. We are both scuba divers who enjoy night diving. We have found that a lot of the critters that we are interested in are more active at night: I, for instance, collect only the family Conidae, almost all of which are on the prowl during the early evening or night hours.

I wanted to make this trip to Venezuela because of my interest in cones. I was most interested in trying to locate some specimens of *Conus cedonulli*, Linné, 1767. I knew this species came from Venezuela because I already had two Venezuelan specimens in my collection, one from Tom Honker dated June, 1983, and the other from Marty Gill dated March, 1986 and identified as *Conus mappa trinitarius* Hwass in Bruguière, 1792.

Because of the rough waters which prevailed most of the time we were on Isla Margarita, we were able to dive only one location, Pelican Rock, about 300 yards offshore, where thousands of pelicans roost each night. In the rather shallow waters here — 10 to 35 feet — we found several specimens of the cone I was looking for, in and around coral head bases on a clean bottom of rather granular type sand/gravel. This habitat was not much different from areas in Honduras or the Bahamas where Kevan and I have found similar cones. We had our best luck when entering the water just after dusk and for about one

hour. Although we found several shells while diving our second tank, most of them were engaged in burrowing back under the sand near the base of heavy coral.

I have a number of *Conus cedonulli* from several locations in the southern Caribbean. Even without getting into the complexities of identification of this species, I can state that I question the identity of the specimens Kevan and I found. I actually collected 25 *cedonulli*-type shells, nineteen of them alive, and only three of these are gem shells.

All have a rather dull finish, as if they were beach shells. Under low magnification of a microscope, the exterior of the shell is extremely pitted and corroded-looking. All of the spires are heavily corroded and look more like the tip of a *Conus regius* than that of a *cedonulli*. While under water, the shell color was quite clear, but it turned white when removed from water, as if there was a light calcium coating over the entire shell. Unlike the heavy lime deposits that accumulate on shells like *Conus regius*, it could not be scraped off, and it took a soaking in vinegar to reveal any color at all. But all tend to have a high luster.

None of my other fifteen *cedonulli* specimens has a trace of this pitting, including the 1983 specimen, but the 1986 specimen does! We wonder if other divers have had a similar experience. And we wonder if it could be due to some fouling of the water by the heavy pelican population.

For those interested in identification, I would label the shells pictured as *Conus mappa trinitarius*, because of a recent article in *La Conchiglia* by Danker Vink. The only difference is that the animals in my shells were not red, but flesh color, with a darker brown mantle. The operculum was so small that I couldn't find it in most cases. The largest cone we found was 40mm.

Carl R. Sahlberg, 7826 Camberwood Dr., Indianapolis, IN 46268.

## THY WILL BE DONE . . .

*Shell collecting is for some of us a lifelong pursuit. Others take it up in our leisure years. But to all of us comes the time to make a decision about the ultimate disposal of our beloved and perhaps very valuable collections. The following articles represent two people's opinions, under very different circumstances, on how to dispose of a shell collection.*

## WHAT SHOULD WE DO WITH OUR COLLECTION?

by Jean M. Cate

To every collector, there comes a time when he wonders how to dispose of his collection, after he's gone or before. I don't pretend to have all the answers, nor even one that will be right for you. But having done it nearly fifteen years ago and survived, I'd like to tell you how we came to our decision when **our** turn came.

My husband Crawford and I once had a fine, large shell collection. It was big and unwieldy, but we loved it and used it well for some thirty years — as research material for both of us; to draw from for my **SHELLECTURES** slides, and simply because we enjoyed it. Finally, for many reasons, a time arrived when we no longer needed that massive collection. That was the point where **our** decision had to be made.

As do all collectors, over the years we had idly wondered what would eventually become of our treasures. When we traveled, we visited many private collections and museums. We were privileged to be invited into museum study collections not open to the general public, where the curators and their assistants accomplish the real work done in museum collections. We talked a lot about disposing of shell collections. Here is a summation of our findings.

### 1. Donating to Museums

Most private collectors we talked to wanted their shells to go to museums, to be enjoyed by others. Almost without exception they planned to stipulate that their collections be kept intact as memorials in their names. But in the back rooms of museums of whatever size, we learned that they did not normally welcome such gifts. Several times we saw stacks of old cartons full of shells, roughly labeled "Doakes Collection," and so on, often water-stained and bug-ridden, obviously there for years, never even unpacked. By this time, of course, the original owners of these shells were long dead, never knowing that their dreams were unrealized and their treasures wasted.

The answers of museum curators were invariably the same: "We simply haven't the space to keep such collections together. If we weren't bound by the legal red tape written into the owners' wills, which requires us to keep the collections intact, we would enjoy keeping whatever was new to our collection, possibly substitute their better specimens for what we already have, and dispose of the rest. But our hands are tied, for we have neither the space to do as the donors wished, nor the right to do as we wish with the shells."

This is a valid, realistic viewpoint, for most museums have little money and even less space for new exhibits duplicating what is already on display. Rarities and gem specimens from any collection are welcome, but most museums have no need, no space, and no funding for the leftovers. Thus those collections have become worthless to nearly any museum, and are probably molding in their cartons, turning to rubbish as the years go by.

A case in point, but with a rare happy ending, is the murex collection of Maxwell Smith, who wrote **The Rock Shell Book**. Lost for several years after his death, Smith's collection was accidentally found in the basement of a small southern college, still packed in its cartons. He had donated it to the college, but whatever his wishes for its use may have been, they were never carried out. The collection might never even have been found if someone hadn't decided to clean out the cellar; fortunately he realized he had a prize, instead of simply discarding it.

The only way to make your collection welcome to any reputable museum is to have it properly curated, with adequate labels on every lot of shells, and arranged in as scientific a system as possible. This topic is covered in many popular shell books and should be studied carefully when one considers donating a collection to a museum.

### 2. Private Sales

Private sales are best forgotten. In a typical example, we knew a fine collection that was privately sold by the collector's widow who knew nothing about its value, thus certainly losing money from the first day. Buyers naturally chose her best shells first, leaving only less desirable specimens. The sale dragged on for several years, with strangers intruding on her time and privacy to pick over the collection; today even her safety could be at risk. Such cases are common. Caution is important. If you do sell privately, it's best to sell entirely by shell families — no single specimens — or you'll wind up with nothing but dregs.

### 3. Auction Sales

Auctions are another way to go, but seldom profitable. One must rent a large meeting room (expensive!); hire an auctioneer or two (costly!); print programs (high-priced!!); advertise (outrageous!!!); hire guards (steep!); set up tables and chairs (rented); serve soft drinks (at least); organize perfectly labeled shells in the same order as listed in the catalog; hold at least one pre-auction showing, with more guards (see above); con your friends into watching for thieves; do a lot of the work yourself, etc. By now, the picture should be fairly clear to you. An auction is good entertainment for the spectators, but probably won't net much profit to the seller, no matter how it's handled, nor will the prices realized be bargains for the buyers.

### 4. Selling to a Dealer

After seeing such sad results from these means of disposal, when our time came to decide, we sold our entire collection to a reputable dealer and never regretted it. To this day nearly fifteen years later, I meet strangers at shell club meetings who say, "Oh, I'm glad to meet you! I want to tell you that I have your specimen of *Murex nuttingi* (or whatever) with your personal label, and I'm so pleased to have it in my collection." That's nice to know, and it's part of our reward.

Through experience, we learned that our approach had other advantages we hadn't anticipated:

1. We knew our shells were well cared for, even loved, in someone's collection, not molding in some unknown cellar. Every specimen found a happy owner and even the dealer profited, quite rightly.

2. We were pleased that our "recycled" shells had found new homes without killing more animals.

3. All our shells were disposed of at once, and packed and removed at no cost to us.

4. Finally, since our specimens were well labeled and in scientific order, they brought a good, fair-to-everyone price which we invested to our own benefit. Muss and fuss were kept to a minimum, and everything was handled by the dealer, who managed it very well indeed. This is one more reason to keep your collection in tip-top condition: it makes it desirable to others, including museums, as well as more useful to you.



### 5. Miscellaneous Suggestions

I strongly advise against leaving your collection for your kids to handle, unless they are avid collectors themselves and know all about it. In that event, they'd probably keep it anyway.

Don't wait too long unless you have a foolproof plan. It's more certain to be done right if you do it yourself, and before you're too old to carry it out. You'll miss it, but you'll recover. And with time, there's a certain amount of relief that goes with that recovery, believe it or not!

### 6. Disposal by Will

Never depend upon willing your collection to a museum without firm advance written agreement from the curator. If the curator changes, do it again!

This brings up a very important point: If you do not relinquish your collection in your lifetime, your will should provide for a primary means of disposal and a second means as well, in case your first choice is not carried out.

In a very sad, true, recent case, a noted malacologist willed his collection, his manuscripts, and a good deal of money to the museum of his choice without providing an alternative bequest. An unscrupulous lawyer absconded with most of the money, and the museum failed to honor the donor's wish to use his bequest for the Malacology Department. Instead, the museum used the receipts from the deceased's estate for an entirely different field of study, leaving its important mollusk department unmanned and unfunded.

### 7. Disposition of Type Material

On the subject of type material, the answer is simple: type specimens should not be kept in private collections, because they represent a

taxon forever, and so should be kept in safe repositories, available to widely scattered malacologists for their studies. I suppose it boils down to a matter of honor as much as anything: selling type material simply isn't done! Types should not even be considered part of a private collection.

The holotype is donated to a reputable museum at the time the new taxon is published. Paratypes are also welcome at the same museum, but it's a good idea to disperse them among other museums, around the country or around the world. Today's better malacological journals will not accept a new taxon for publication unless prior agreements for an accession number have been made with the museum where the holotype will be placed. This number is always included in the publication so that anyone can go there and study the specimen.

In the United States (at least as of this date) a tax deduction can usually be taken for such charitable donations — a nice added incentive.

Perhaps you've heard more than you wish to know. I hope I haven't inadvertently omitted any possibilities. This account is simply what we observed over thirty years of collecting, and how we arrived at our conclusion. Remember that we disposed of our collection some time ago, so certain circumstances have changed. And there are other viewpoints, equally valid under different circumstances. But if our experience helps you understand some of the pitfalls you can encounter, I'm glad, and I hope these suggestions help you with your decision when your time comes to make the big one.

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## WHEN YOU CAST YOUR COLLECTION ON THE WATER

by Thora Whitehead

The following tale may reinforce comments about the usefulness of donations to museum collections, and dispel the myth that just because a collection is not displayed for public viewing, but integrated with the general collections, it loses its purpose. In fact, quite the opposite is true.

I succumbed to the shelling obsession in 1962, when living at Mtwara, South Tanzania. Three fractious children under three made the beach the only sensible place to go between 4 and 6 p.m. They could express their feelings on sandcastles rather than on each other.

South Tanzania has a quite prolific molluscan fauna. It was not long before I was a keen collector, and I made up with enthusiasm the great deal I lacked in knowledge. One thing I knew for sure was that shelling is better at low tide and without three youngsters to mind. It was not hard to find a nursemaid or *Ayah* who would babysit while I dashed off to catch the morning tide — usually 11 a.m. in that area.

When we left Tanzania two years later for England, I had collected a fair sample of the local molluscan fauna. I even believed I had found some new species — but in each case it was a juvenile of something else.

Another of my fancies was that a *Haliotis* was half of a bivalve I never could find alive! Such fancies are easy for a new collector, with no one else to ask about such things.

After such a molluscan paradise as Tanzania, I found the beaches in England uninspiring. I turned to working on my collection with the help of *Seashells of Dar-es-Salaam* by Spry and Joyce Allan's Cowry book, in the precious peaceful two hours after lunch while the ruffians had their enforced rest. At the time, Spry had not yet published his Bivalve section, but I was so busy with the gastropods that the lack did not worry me.

After a year, we were transferred to Perth, W.A. We were soon

in the first home we had ever owned (well, us and the bank!) My first shell room consisted of one third of the back shed! By then, two of my three lively ones had started school. With more spare time, I soon had my gastropod collection set out in the cabinets I had bought in England. (That proved to be a good move, as everything was more expensive in Australia.)

My collection of gastropods was by then mostly identified, but the bivalves remained unidentified, sorted into species in small boxes. Few collectors were interested in bivalves then and I must confess I followed suit. After only two and a half years, we were asked to move to Cairns. My heart sank at the thought of packing up all the shells again. I decided I could well do without the bivalves, and rang the only friend I knew who was interested, telling her she could take her pick of one of each species. The rest of them were taken to the West Australian Museum as Dr. Barry Wilson had expressed an interest in having them. At the time, I could not think why, since many were unpaired valves.

It is what happened to those two lots of shells that has convinced me that a Museum donation is best.

After only two years, I heard that my friend had sold her lot. By now, I cannot guess where they may be, perhaps even the rubbish tip. Better collections than that have been dumped.

It took longer for me to hear anything about the Museum lot. Some time after the publication of *Cardiidae of Western Australia* by Wilson & Stevenson in 1977, I was lucky enough to have a visit from Dr. Barry Wilson. Having by now become very interested in bivalves, I asked him where on earth he had managed to get a particular Indian Ocean species for study and comparison. The answer — "Your collection."

The latest evidence that my Tanzanian bivalves are being used came

only recently at a Malacological Society of Australia, Brisbane Branch meeting. Dr. Richard Willan showed me a *Gari weinkauffi* from the Red Sea and assured me, "You collected this species in Tanzania." He had borrowed shells from the West Australia Museum for his current study of the Psammobiidae.

I know that my East African bivalves may not be looked at very

often, but it is good to think that just now and then, on into the future, they will be very useful to someone who is working on a particular group.

(This article was originally printed in **Keppel Bay Tidings**, and reprinted in **Hawaiian Shell News** in August, 1986)



## BOARD TALK

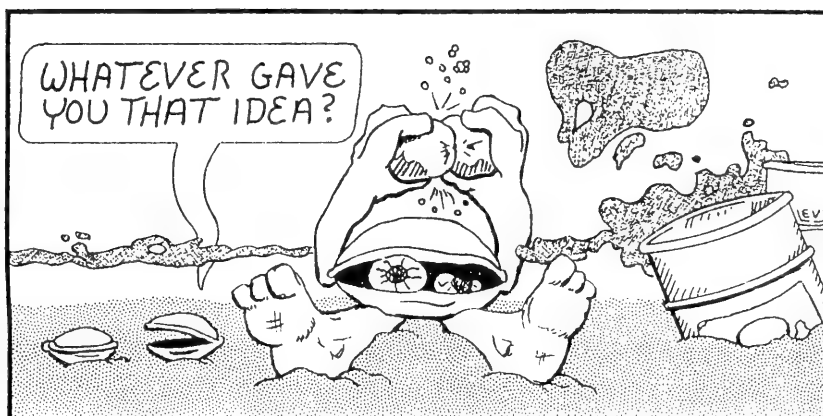
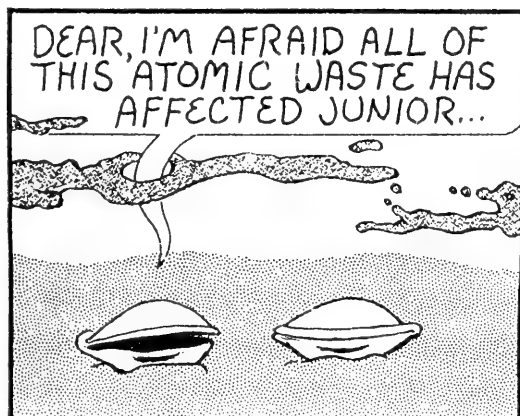
### From Trophy Chairman, DONALD DAN: KEPPEL BAY SHELL CLUB TO AWARD COA TROPHY

We warmly welcome the first Australian shell show to carry the COA Award. The well-known Keppel Bay Shell Club in Queensland, during their 1988 shell show to be held July 23-24, will give out the COA Award to an exhibitor judged to have the most outstanding display. We are indeed pleased to have Keppel Bay Shell Club join the growing family of COA Award participants. 26 shell shows now give out this award, including the annual British National Shell Show in London and the International Salon in Lutry, Switzerland.

The COA Award has been established by the Conchologists of America to encourage open participation by shell collectors at shell shows worldwide, and to stimulate improvements in shell exhibits. It is given at a juried shell show to a single scientific exhibit which best furthers the interest in shells and shell collecting. Any shell club

interested in participating in this award program should write to Donald Dan, 2620 Lou Anne Court, W. Friendship, MD 21794, U.S.A. Tel. (301) 442-1242.

From COA Treasurer, WALTER SAGE: We continue to receive new memberships and late dues payments for 1988 and are now down to 115 memberships (105 domestic and 10 foreign) not yet paid for 1988. Those members not paid for 1988 should have received a "final" reminder, but will not receive the June and following issues until payment of 1988 dues is received. If you become aware of any member/club not paid for 1988, remind them to pay AT ONCE. A second reminder — if your dues are paid and you do not receive an issue by the end of the month following the publication month (for example, July 31 following the June issue), please contact Membership Chairman Bobbie Houchin for resolution of the problem involved.



Cartoon by Bill Levy

## WITH THE CLUBS

by Margarette Perkins

"Great Pacific Clean-A-Beach Day" will be held June 25, 1988. Hawaii and other Pacific states, as well as other nations around the Pacific, will tote green garbage bags which they will fill with all the refuse clogging our beaches and shallows. COA member Raymond Kiorkof called the event to our attention, noting, "It is of great importance to keep our beaches and environment clean, and we just might find a shell or two doing so!"

Bill Shaw, former newsletter editor of the **Southwest Florida Shell News**, taught a non-credit course on "Shells and Shell Collecting in Florida" at Edison Community College during February, 1988, through the office of continuing education.

The **St. Petersburg Shell Club** will send a collection of Florida

sea shells to schools for classroom use in areas where collecting is not possible. Requests should be submitted on school stationery by the principal or head of the science department; and addressed to St. Petersburg Shell Club, Education Committee, 3631 Yardley Avenue North, St. Petersburg, FL 33713.

The **Hawaiian Malacological Society** is hosting its first shell show in nearly a decade. It'll be combined this year with a shell auction featuring rare shells as well as sales tables. The Show will also be the occasion of audio-visual programs on collecting, shelling spots, saltwater aquaria and recent developments in malacology. Details are available from the HMS Shell Show Committee, P.O. Box 22130, Honolulu, HI 96822, or by phone from Stu Lillico, (808) 734-3703.

## 100 CONCHOLOGICAL YEARS AGO

**MARCH 1888.** Advertisers in Philadelphia's "Conchologists' Exchange" were inducing readers to send shells in exchange for "Cheap Florida Lands and Orange Groves," "asparagus roots and Cactus" and Mrs. Yates' "Catarrh Remedy that never Fails."

**APRIL 1888.** Rev. William M. Beauchamp (pronounced: beecham) of Syracuse, New York, reports the outbreak of millions of European freshwater snails (*Bulimus tentaculatus*) in Ohio and Illinois where the pea-sized invaders are popping out of city water faucets.

**JUNE 1888.** The famous Andrew Garrett (1823-1887) shell collection was purchased for the Bishop Museum in Honolulu, Hawaii.

**JULY 1888.** A young newspaper reporter, Henry A. Pilsbry, left New York and joined the Academy of Natural Sciences of Philadelphia to start an 80-year career in malacology.

**JULY 1888.** The last volume written by George W. Tyron, Jr. on the land Helicidae appeared in the fourth volume of the **Manual of Conchology**. Pilsbry finished this and 24 more volumes over the next 47 years.

**DECEMBER 1888.** The Muscatine (Ohio) Shell Club, with 12 charter members, held its last meeting and then dissolved.

**1888.** Sir. David Barclay of Mauritius, after whom *Cypraea barclayi* and *Murex barclayi* were named, died at the age of 84. He was the owner of the then sole known specimen of *Strombus taurus* until his death.

— gleaned for us by R. Tucker Abbott

## "BYNE'S DISEASE" IN OLD SHELL COLLECTIONS

Old shell collections are often afflicted with the so-called "Byne's Disease," a destructive efflorescence, eventually destroying the surface of the afflicted shell. Usually the marine species are those affected, but non-marines can also suffer. A recent paper, "The Deterioration of Molluscan Collections: Identification of shell efflorescence" by N. H. Tennant and T. Baird (**Studies in Conservation** 30 [1985] 73-85) goes very fully into the matter and offers suggestions for treatment.

My personal experience of treating affected shells may be of use to those in charge of molluscan collections, especially old ones. In 1955 I treated a series of important Types of a marine genus, many being badly affected. First, I boiled them for a couple of minutes. Second, set them on blotting paper and leave to dry thoroughly. Shake gastropods well to be sure no water remains in them. Then, following Nicholls (1934), I rolled each shell gently in my Vaseline hands, working the Vaseline thoroughly into the surface of the shell. Finally, wipe with soft cloth, and state on label with specimen the treatment you have given it.

Thirty-three years later these shells show no recurrence of the trouble (Jan. 1988). It is a tedious job but worth doing with specimens of taxonomic or historic value. N.B. A mineral oil should be used.

— Nora McMillan, Dept. Invertebrate Zoology, Liverpool Museum, from **The Conchologists' Newsletter**, Leicestershire, England, no. 104, Mar. 1988.

## REFERENCE:

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## SHELL GATHERING ON SOUTH AFRICAN BEACHES

by Olive Peel

Many people are interested in shell collecting who do not live-collect. This little paper is written to let them know what shells we can pick up on the beaches in my lovely province of Natal, Republic of South Africa.

The best places for beach shelling in South Africa are the Cape, the Transkei, our truly magnificent wild coast, and adjoining Natal. On the wild coast, living conditions are primitive: no water, and certainly no shops. Four-wheel drive vehicles are required to get there from the main tarred road. If you are extremely lucky, you can hire a cottage from someone, but even then, you have to be related to the owner. I hope to do one of these trips next year, and will report on it then. But very exciting shells can be found — the highly-prized, hard-to-find-in-nice-condition *Lyria africana*.

We have a very rocky coastline, so broken shells are always found on the beaches. Sometimes there is beach drift at the water's edge, which I place in a plastic bag or small bucket to take home. When the sand is dry, I place it on a tray and sort it at leisure under a powerful magnifying glass. Only those who have entered the world of "minis" know what magnificent sculptures these shells have. It always seems tragic to me that such magnificent work should be so tiny as to be hidden from the world. There are epitoniums, trivias, an ovula if you are extremely lucky, bivalves and hundreds of other tiny shells.

Most of our dead shells are found in the little pools among the rocks, but occasionally we are lucky enough to find some on the high tide line or at the water's edge. In our bay in Durban, we are not allowed to collect live shells, but there are many dead or crabbed shells, amongst which are *Monilea obscurus*; *Rhinoclava kochii*, *Polinices tumidus*; *Strombus decorus*, *S. gibberulus*; *S. mutabilis*; *Cymatium durbanense*; *C. cutaceum africanum*, *C. pileare*; *C. parthenopeum*;

*C. vespaceum*; *C. callinago*; *Terebralia palustris* washed down from the swamps; *Bulla ampulla* of enormous size; *Thais mutabilis*; *T. alouina*; *Bursa rosa*; *Murex kilburni*; *M. brevispina*; *Volema pyrum*; *Nassarius horridus*, *N. coronatus*; *N. arcularius*; *N. kraussianus*; *N. gemmuliferus* and many bivalves.

On our coastal beaches, shells are mostly found in pools, easy to reach. I find that using a walking stick gives me greater confidence when walking over rocks, and especially through pools. Some of the shells that can be found in these pools, at the water's edge or on the high tide line, are: *Morula* species, *Gyrenium pusillum*, *Drupa* species, *Drupella elata*, *Nassa francolina*, *Coralliophila fritschii*, *Purpura panama*, *Thais* species, *Engina perlata*, *Cantharus subcostatus*, *Bulla* species, *Pyrene floccata*, *Conus miliaris*, *C. lividus*, *C. coronatus*, *C. catus*, *C. ebraeus*, *C. musicus*, *C. sponsalis*, *Peristernia* species, *Hydatina* species, *Alcira elegans*, *Columbella* species, *Epitonium lamellosum*, *Clanculus* and *Turbo* species, *Heliacus variegatus*, *Cerithium crassilabrum*, *Trochus nigropunctatus*, *Monodonta australis*, *Stomatella sulcifera*, *Hippinx barbata*, *Cypraea teres*, *helvola*, *chinensis*, *citrina*, *fimbriata*, *carneola*, *annulus*, *arabica immanis*, *caputserpentis*, *lynx* and *staphylea*, as well as littorinas and five species of nerites, bivalves, patellas and siphonarias.

The pools are alive with purple sea urchins, and if you are lucky, you might find a dead one. All of the sea urchins have mussel halves or patellas on top of them — to protect them from the sun, so research has shown. Moving around in the pools too may be an occasional *Umbraculum*, with its enormous yellow-orange body and umbrella-like shell on top.

We have a newly named patella — *Patella asphantes*; it and *Patella oblecta* can also be found among debris on the beach.

Many beach collectors may not like collecting crabbed shells either, because they don't wish to kill the hermit crabs. But I use a method that allows me to have the shell and the hermit crab to have his life. I place the crabbed shells into a plastic bag, tightly closed, in the sun for a while. The crabs vacate their shells because of the heat (Watch closely or they get too hot!). Then I drop them into a pool where there are other dead shells. It is amazing how quickly they will find

a new home.

Don't forget to wash the sea water off your shells when you get home. I put mine in a large sieve and place it under the tap, then place the sieve in the sun to dry.

A friend recently returned from a trip to Mauritius, and he brought back only dead shells, but it was a most incredible collection that we all goggled over, so it is really not necessary to collect live shells.



Olive Peel photographing a wedding. Olive Peel in "Rigoletto."

Olive Peel at her desk.

## OLIVE PEEL: Kaleidoscopic Personality

by Lynn Scheu

Rarely is a shell auction held that the name of Olive Peel doesn't appear on the donor list. Few are the shell publications that don't count her among their contributors. Almost never can one mention her name among a group of shellers without someone saying, "Olive Peel . . . I know (or correspond with, or trade with) her!" Her charitable nature and inexhaustible energy are legendary, and her friends around the world are legion. Even her name sparks imagination.

But who is Olive Peel? Where does she live? What is she like? I'm learning the answers to those questions gradually; I joined the ranks of Olive's correspondents and became a recipient of her bounty shortly after becoming editor of *American Conchologist*. Since then, my "Olive Peel" file has grown thick, and my life much richer.

Olive is an avowed "very large lady" with a heart to match. She lives in Durban, Natal, South Africa, about two-thirds of the way up South Africa's east coast on the Indian Ocean. She types out her reams of correspondence on pale blue Aerogram stationery from her office in the Mapping Department of the University of Natal (although she says she is retiring soon.) The "exotic aunt" in a large family of brothers and sisters and their offspring, she has adopted the world as her extended family. Her letters are full of her interest in life: snippets about life in South Africa, proud descriptions of her apartment with indoor garden and fishpond and her Nissan Skyline car, tales

of her travels and collecting trips.

Letters aren't the only product of her typewriter. She writes many articles for *The Strandloper*, publication of the Conchological Society of Southern Africa, for *Hawaiian Shell News*, and for our own *American Conchologist*, among others, as well as articles for other nature-oriented magazines. Her interests are varied and far-flung. Waves, mangroves, coral reefs, brachiopods, and paleontology are all subjects of recent articles from her pen . . . er, keys. She also writes on travel and photography.

Speaking of photography, Olive is an award-winning photographer and a past photography teacher. She is also a singer: she sings in the Temple David Choir, sings second alto for Professional Arts Council Symphonic Chorus and operas, and has a concert group which performs operettas for old age homes (Olive writes and directs!). And if this isn't enough, she ran a Girl Guide company, designs and makes all her own clothes, and plays the piano and piano accordion!

An ardent sheller since 1979, she has a large scientific collection which she augments by her world-wide trading and her collecting trips. She just returned from a trip to the Transkei, South Africa's "wild coast." Olive ran the Natal Shell Society, and is current secretary of the Conchological Society of Southern Africa and secretary of the Durban Branch, as well.

She's a kaleidoscope of a woman, and we suspect that her proposed retirement, when it comes to pass, will provide her with the leisure to add many new shells to her collection, new friends to her list of correspondents and new facets to her personality. Meanwhile, she sends "Hugs and kisses to you all!"



## BEST OF THE NEWSLETTERS

## HABITATS: WHERE DO SHELLS LIVE?

by Vivienne Smith

Habitat: the region where a plant or animal normally grows, or lives; native environment.

Most of our studies of mollusks have pertained to the marine species, but one outstanding characteristic of a mollusk is its success in adapting to life in an amazing range of habitats; their consequent development of specialized forms permits mollusks to survive under conditions of extraordinary severity and diversity. Tiny snails live over three miles above the level of the sea, on lichens among snowy peaks of high mountains. At the other extreme, 3,900 feet deep in the ocean (and discovered by geologists studying the Galapagos Rift Zone in 1977), large mussels, clams, giant tube worms and crabs live in small areas where warm water pours from the sea floor.

If you were to observe animals, including mollusks, in their habitats, you would notice that most of them are constantly moving about, and that much of their locomotion involves food getting. Food is the energy source for their everyday activities. Animals are energy-transforming mechanisms — they can change energy from one kind to another, but cannot create their own energy. Not only is the kind of available food important to an animal, but the relative abundance of that food is a factor in the animal's geographical distribution. It has been estimated that an oyster strains over 60 gallons of water a day in order to obtain food.

An animal occupies a particular habitat for one of four reasons:

1. The animal may have been born there.
2. It may have moved into the habitat as a negative response to the adjacent environment.
3. It may have moved in from an adjacent environment as a positive response to its present habitat.
4. It may have been transported over a barrier (such as rocks or land) into the habitat by some external cause — wind, water current or man.

An animal usually remains in a given environment as long as environmental factors are within its range of tolerance. The fundamen-

tal factors necessary are temperature, food, oxygen and water. As soon as one of these factors changes beyond its range of tolerance, the animal either dies or migrates from the habitat, in which case it may happen to find a suitable place in the adjacent environment and survive, or not happen to find it and die. Barriers such as land or underwater mountains may prevent an animal from leaving an unfavorable habitat, and thus bring about its death.

In ocean ecology, everything is relevant, step by step from the atom, on to simple molecules, cells, tissue, organs, and eventually through the whole ecosystem. The ultimate effect of ecological adaptations is to enable individuals to secure sufficient resources so that they survive until they can successfully reproduce.

A mollusk's habitat, just like our own, directly reflects the "Four R's" of living: **Respiration** — obtaining usable energy from complex, high-energy molecules; **Reproduction** — transferring of genes through offspring to subsequent generations; **Response** — reacting and interacting with stimuli from its surroundings; and **Regulation** — controlling exchange of materials between external and internal environments, while at the same time maintaining a constancy in its own organized internal environment. Phylum Mollusca is our interest, so we must adapt these Four R's to this phylum.

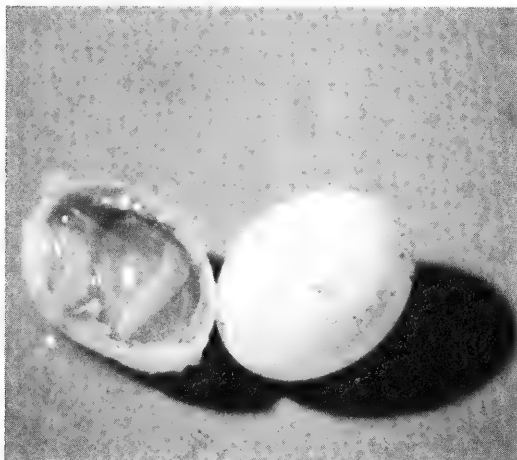
Where do the mollusks live?

**1. ROCKY SHORES** — Molluscan inhabitants of rocky shores are able to withstand many hours, even weeks, out of water. They must cope with the degree of wave impact, the slope of the shore, the nature of rock substrate, and the presence or absence of seaweed and other animals. Bivalves are usually in low water zones which tides submerge once a day. Well above the high tide line — as much as 50 feet — will be found Periwinkles and *Tectarium*. Most rock dwellers migrate daily, either to search for food at night, or simply to follow the wetness of the intertidal zone. At night limpets, nerites and chitons seek new algae pastures, then return to home resting spots. Zonal distribution of many herbivores is determined by their preference for

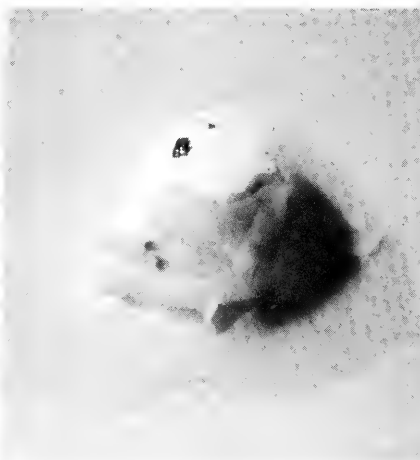
## BIRTH OF A SNAIL

by Patricia K. Armes

Observant amateur conchologist Pat Armes of Plantation, Florida, cornered a herd of emerging Rosy Glandina Snails in her backyard and snapped these photos. (*Euglandina rosea* (Ferussac, 1821) from Abbott's **Compendium of Land Shells.**)©



"I see daylight, and my heart is beating!"



"Foot and eyes first, then I'll be out."



"I came from that!?"

certain kinds of seaweed. For example, the Northern Yellow Periwinkle, *Littorina obtusata*, always prefers Fucus weeds.

Carnivorous mollusks (only the Murex family) have invaded vertical rocky shores; you probably have collected *Thais*, *Nucella*, and *Purpura* which bore holes in mussels, clams, barnacles and chitons to feed. (Members of the Murex family produce a mucous fluid which turns purple in sunlight and has a fetid, cabbage-like odor; this fluid is believed to have an anesthetizing effect on other mollusks.) Other rocky shore murex you might know are the Deltoid Rock Shell, the West Indian *Purpura*, the Magpie (*Cittarium pica*), the Common West Indian Chiton and the Prickly Winkles.

**2. CORAL REEFS** — The Great Barrier Reef of Australia is 1,200 miles long — making it the largest, most impressive structure on earth — and it was entirely built by coral polyps, each no larger than a lily-of-the-valley. Seldom are living snails seen crawling over living corals. *Ovula ovum* (the Poached Egg Cowrie), Sundials, the Pedum Scallop, Rapa Snails, the Winged Oyster, *Cyphoma* and *Simnia* are among the few found there. But coral graveyards harbor a rich population of mollusks. The dead, worn, gray blocks of coral, loosened by storms, serve as shelter for dozens of species of cowries, cones, miters and lima clams, and many small species of univalves.

**3. SANDY BAYS** — There are great differences — both geographic and climatic — among sandy bays in different parts of the world. One of the environmental conditions is shifting sands. The Tellins and Macoma Clams have adjusted to this complication by developing very long, sinuous siphons that can project up through several inches of sand, and which may also be used as a vacuum cleaner to suck in detrital food. The univalves have adapted well to this habitat, and very few families of snails have no sand dwelling representatives. Olives are the most adept, ploughing through sand fairly rapidly. The conch navigates the sand using a type of pole-vaulting mechanism involving its foot and operculum.

**4. MANGROVES** — Mangrove habitats are usually found on the lee side of tropical islands, in brackish water estuaries and lagoons. In the Pacific Ocean, Money Cowries are found at the base of mangrove roots. In the West Indies, the Zebra Cowrie, *Lucina* clams, *Melongena* and *Cymatium* are found around these roots also. The natives of New Guinea hunt through the deepest muck of the mangroves for their favorite chowder ingredient, the Kufus Clam, a three foot member of the Tereido family that looks like a huge, shelled worm. A 1mm *Rissoa* and a 2mm *Scissurella*, among the world's smallest gastropods, may be found in green algae clinging to mangrove roots.

**5. OPEN OCEAN** — Approximately 200 species in 30 families

spend their entire life at sea, without touching bottom or the shore unless they are dying. *Janthina janthina* live on the surface and make their own floats. They can be found during February and March among beach drift along the Florida Keys when winds are high. The cephalopod, *Spirula spirula*, is also found in drift. Alive, they congregate in schools in vertical position at depths of about 500 feet. Whales and pelagic fish eat tiny butterfly-like snails like the *Cavolina* pteropod.

**6. DEPTHS** — The average depth of the ocean is 12,000 feet or 2 miles, although it reaches six miles or 39,000 feet. The tops of many ocean mountains are still hundreds of feet below the ocean surface. Water covers 70% of the earth, and we still have much to learn about its depths.

Most grazing gastropods and herbivorous clams do not exist below 1,000 feet because there is no algae to eat. The depth at which algae will grow varies considerably though, because of varying altitude and the strength of the sunlight available. Still, over 11,000 species of mollusks taken from over 5,000 feet deep have been recorded. At this depth the constant temperature is just above the freezing point, and pressure per square foot is close to one million pounds. The mollusk conceived and born at this depth has a pressure within its tissues and cells equal to that of its surroundings. If there were gasses within its body and it were brought to the surface, it would explode because of these internal pressures.

Deep-dwelling gastropods and many shelled mollusks lack eyes, although cephalopods have luminescent organs and well developed eyes, enabling them to roam considerable distances at great depths.

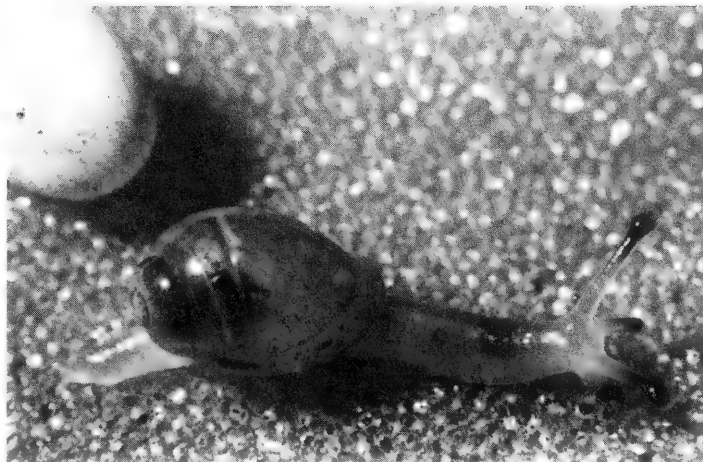
The three main sources of food for these creatures are neighboring animals, dead plankton constantly raining down from the surface, and vegetable and animal detritus sliding off the continental shelf in the form of mud. Mollusks of abyssal areas are usually drab: white, gray or brown, and sometimes red. (Below 100 feet, red appears black). There is a lack of pattern on these shells. Trochids, Naticid Moon Snails, Buccinids, Marginellids, Volutes and Turrids are also found at these depths.

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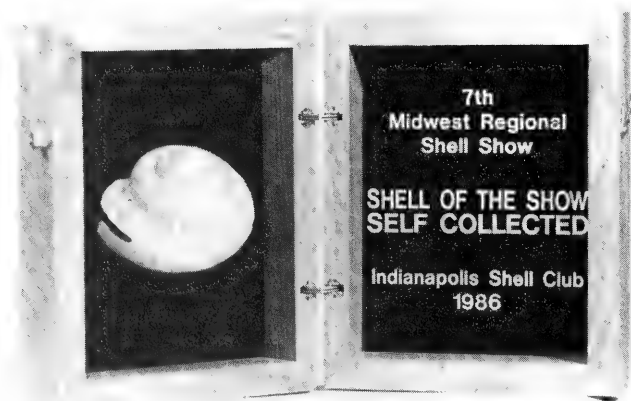
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"What a wondrous world!"



"At three weeks, I'm off for more food."



Rarest of all slit shells, "*Perotrochus indianapolis*." There are only seven of these shells in existence, and the owners of each have been recorded in the minutes of the **Indianapolis Shell Club**. They are: Thad and Marian Brzana (one each), Roberta Cranmer, Carl Sahlberg, Cynthia Nichoalds, Nancy Gilfillan and Linda Bush. And they are the 1986 award winners from the biennial **Midwest Regional Shell Show at Indianapolis**.

The slit shell, a reproduction of *Perotrochus teramachii*, is hand crafted and hand painted exclusively for their show (See "Shelldug-gery," p. 15 by John Timmerman). Seven more will be awarded this summer to lucky and inspired entrants of the 1988 Midwest Regional Shell Show, August 13 and 14. If you are interested, write Carl Sahlberg, 7826 Camberwood Dr., Indianapolis, IN 46268.

### THE MEMBERS' EXCHANGE

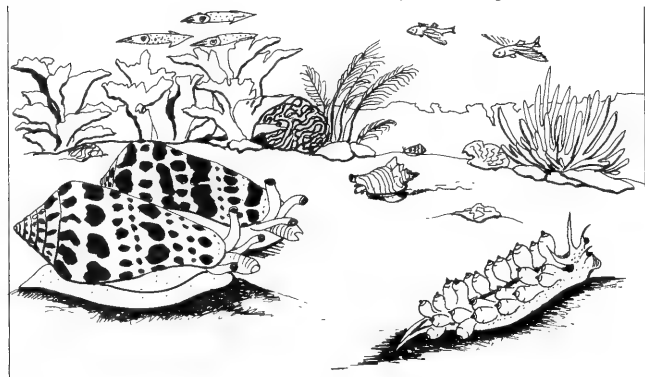
**BILLY D. COOKSEY**, COA member stationed in the Philippines, (NSWU-1, Box 37, FPO, San Francisco, CA 96651-5000) invites any COA members traveling in the Philippines to visit him in Subic Bay, where he is stationed. He says he knows the bay well and would enjoy showing his shelling spots. He says, "To find me just go to the Base and they will contact me at Naval Special Warfare Unit One, Building 1066, or just write and let me know when you are in the area."

**SANDRO GORI**, COA member from Italy would like to exchange shells with anyone interested. Write to him at Via Sernesi 7, Livorno 57100, Italy.

**JAIME PAIVA**, Rua de Sao Paulo 9, 10-D, 2780 Oeiras, Portugal, is interested in exchanging European shells and others for American shells. He is interested in most families and will send a list on request.

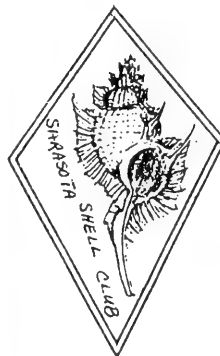
**ROBERTO UBALDI**, Via delle Case Basse, 171-00126 Acilia, Roma, Italy, is interested in "some particular shells" living along our coasts, and writes to ask if an exchange is possible.

Cartoon by Carl Sahlberg and John Timmerman



"Can you believe that? And on a Public Beach!!"

### PIN MONEY . . .



The Sarasota Shell Club now has a club pin to offer any interested collector. The pin was designed in 1987 using the club emblem, *Murex beaulti* Fischer and Bernardi, 1857. The pin is available for \$3.50 from Mary Mansfield, Treasurer, 2232 Bahia Vista, A-7, Sarasota, FL 34239.

### 1988 SUMMER & FALL SHELL SHOWS AND MEETINGS

- |                 |  |
|-----------------|--|
| Jun. 18 —19     | Septième Salon International du Coquillage<br>Lutry, Switzerland<br>Dr. Ted. W. Baer<br>1602 La Croix, Switzerland . . . . .(021) 393-771 or 207-371   |
| Jun. 19 —24     | American Malacological Union Annual Meeting, Charleston, SC<br>Richard E. Petit<br>P.O. Box 30<br>N. Myrtle Beach, SC 29582 . . . . .(803) 249-1651  |
| Jul. 11 —15     | Conchologists of American Convention, Ft. Myers, FL<br>Vivienne B. Smith, Registration Chairperson<br>16331 Porto Bello St. NW, Bokeelia, FL 33922 . . .(813) 283-2872                                   |
| Jul. 17 —21     | Western Society of Malacologists Annual Meeting<br>Rohnert Park, CA<br>Matthew J. James<br>Dept. of Geology, Sonoma State University<br>Rohnert, CA 94928 . . . . .(707) 664-2334 or 664-2301            |
| Jul. 23 —24     | Keppel Bay Shell Show<br>Yeppoon, Queensland, Australia<br>Jean Offord<br>277 McDougall Street<br>N. Rockhampton 4701, Qld., Australia . . . . .(079) 283-509  |
| Jul. 29 —31     | Jacksonville Shell Show, Jacksonville, FL<br>John H. Fatu<br>14149 Thomas Point Lane<br>Jacksonville, FL 32225 . . . . .(904) 221-1310   |
| Aug. 11 —13     | Jersey Cape Shell Club Shell Show, Cape May, NJ<br>(Non-competitive exhibition)<br>J.B. Sessoms<br>P.O. Box 306<br>Summers Point, NJ 08244 . . . . .(609)653-8017  |
| Aug. 13 —14     | Midwest Regional Shell Show, Indianapolis, IN<br>Carl Sahlberg<br>7826 Camberwood Drive, Indianapolis, IN 46268<br>. . . . .(317) 877-0213 or Toll Free 1-800-451-1735                                   |
| Sept. 24-Oct. 9 | Oregon Shell Show, Portland, OR<br>Dr. Byron W. Travis<br>4324 N.E. 47 Ave.<br>Portland, OR 97218 . . . . .(503) 284-1365  |
| Oct.            | Pacific Northwest Shell Show, Seattle, WA<br>(Non-competitive exhibition)<br>For exact show date call or write,<br>Elsie Marshall<br>2237 N.E. 175th Street<br>Seattle, WA 98155 . . . . .(206) 363-3219 |
| Oct. 21 —23     | North Carolina Shell Show, Wilmington, NC<br>Dean Weber<br>510 Baytree Road<br>Wilmington, NC 28403 . . . . .(919) 799-3125  |
| Oct. 22 —23     | Philadelphia Shell Show, Philadelphia, PA<br>(Non-competitive exhibition)<br>Al Schilling<br>419 Linden Ave., Glenside, PA 19038<br>. . . . .(215) 886-5807 or 1-800-345-1123 ext. 7456                  |
| Oct. 31         | British Shell Club Shell Show, London, England<br>Geoff Cox<br>7 King John's Road, North Warnborough, Odiham,<br>Hants, RG25 1EE, England  |
| Nov. 10 —13     | Hawaiian Malacological Society Shell Show<br>Honolulu, Hawaii<br>Stu Lillico<br>4300 Waialae, B-1205<br>Honolulu, HI 96816 . . . . .(808) 734-3703   |

## SHELLDUGGERY

by John Timmerman

Clever artists have a tradition of fabricating shells from one medium or another. Remember the reports of doctored *Conus hirasei* (Kira, 1956), or other cones painted to resemble *C. hirasei*, with the apparent intention of fooling the unwary buyer? Still other replicas are made without the intent to deceive, and yet are realistic.

I became interested in this sort of fake when I saw a spectacular *Pleurotomaria rumphii* Schepman, 1879 that Bill Old brought to the American Museum of Natural History in New York some years ago. The aperture was stuffed with a Chinese newspaper printed in New York City in 1972. A stylized interpretation of an actual shell, the artist painted it a brighter color than in nature and took considerable liberty with the growth lines. It measures 258mm. in diameter and is very impressive. The operculum is stained wood.

This creation inspired me to attempt my own reproductions of the shell — far easier to plan than execute. My replicas are poplar wood decorated with acrylic paint. The operculum is carved from a golden brown tropical hardwood called chechen. Like the AMNH specimen, these are stylized renditions of a real shell. I made them sinistral on purpose: making a fake shell is no easy task, so I wanted them to be as unique as possible. Both measure about 230mm.

An alternative to making a shell free hand from wood is to make a ceramic cast in a mold from an actual shell. The Indianapolis Shell Club uses such a reproduction as an award at their shell show, a *Pleurotomaria teramachii* Kuroda, 1955. Casting reproduces the tiniest

detail — the fine beading which would be a nightmare to carve by hand. Using his experience in taxidermy, David McLary makes the Indianapolis shells, and he paints them with an air brush, using an actual shell as guide. He must make ten to twelve tries to achieve the seven high quality reproductions needed by the club. Their cost exceeds the price of some real *Pleurotomaria*.

Another replica most certainly worth more than the genuine article is the wood *Conus gloriamaris* Chemnitz, 1777 carved by Ethelyn Woodlock in the mid 1960's. She made several of these superb reproductions, authentic down to the growth marks, and among the finest wood shells I have seen. After carving the shell to exact dimension, she painstakingly painted them, sometimes using a brush with no more than a few bristles. The specimen below was a gift to her friend, Bill Old, for the AMNH in 1964. Others are scattered as far as Russia.

I have made some *Cypraea* out of wood, and am now working on a *Cypraea leucodon* Broderip, 1828. They take considerably less time to make than a *Pleurotomaria*, but are still a "labor of love." The amount of time it takes to make a false shell is probably the major factor in limiting human attempts at copying what nature has already done so well.

My thanks to Walter Sage, Ethelyn Woodlock and Carl Sahlberg for their generous assistance with this article.



Photo by John Timmerman

*Pleurotomaria rumphii* Schepman, 1879. Wood, artist unknown. In the collection of the American Museum of Natural History, New York. 258mm.



Photo by John Timmerman

*Pleurotomaria rumphii* Schepman, 1879. Poplar wood, by John Timmerman, 1988. Both shells 238mm.

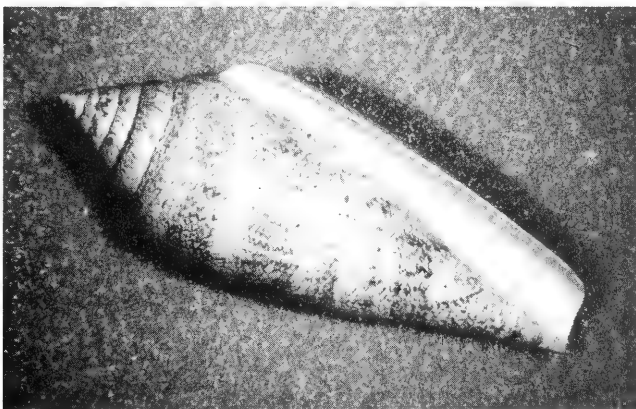


Photo from a color slide by J. R. Germer

*Conus gloriamaris* Chemnitz, 1777 (a.k.a. *Conus gloriamaris woodblocki* Woodlock, 1964). Sugar pine wood by Ethelyn Woodlock, 1964.



Photo by David McLary

*Pleurotomaria teramachii* Kuroda, 1955. Porcelain by David McLary.



## CONTEMPORARY CONCHOLOGY

by Walter Sage

To inaugurate this column in *American Conchologist*, I want to discuss the taxonomic placement of *Morum* and *Harpa*, (a subject with which I was proud to be somewhat closely involved), current work on Ranellidae and Bursidae, and the replacement name *Tudivasum* (Turbinellidae).

*Morum* has traditionally been placed in the mesogastropod family Cassidae, solely on the basis of shell characters. Anatomical studies of this genus and *Harpa* (Hughes, 1986; Emerson, 1986; Hughes and Emerson, 1987) have demonstrated that the members of these genera are closely related and that they constitute distinct subfamilies, Harpinae and Moruminae, within the neogastropod family Harpidae [ICZN Opinion 1436, 1987, conserves the name Harpidae in the Mollusca and provides that Harpetidae be the family name in Trilobita.]

Hughes and Emerson (1986) described the similar external and internal anatomies of *Morum* and *Harpa*. Both have similar but slightly and consistently different shells, radulae and anatomy. Both autotomize (amputate) the tip of the foot when disturbed. Both are likely to feed on decapod crustaceans. Both have species living in shallow and deeper water habitats. *Morum*, however, has a small operculum, which is lacking in *Harpa*. Species of *Morum* lay relatively few eggs, which undergo direct development (crawling young); while members of *Harpa* lay several thousand eggs per capsule, with larvae going through a planktonic phase.

In summary, collectors and researchers alike should place their *Morum* in the subfamily Moruminae, the family Harpidae. This research is in part the result of shared observations and specimens by collectors and COA members such as Dieter Cosman, Emilio Garcia, Richard Goldberg, Royce Hubert, T. C. Lan, Sue Stephens, Germaine Warmke and Peggy Williams — another example of the scientific service that dedicated amateurs can provide to professionals.

In the COA Bulletin, vol. 13, no. 4, New Zealand malacologist Alan G. Beu informally presented his systematic outline of the families Ranellidae (formally Cymatiidae) and Bursidae. Several species were listed as species to be named, but were not described as new in our popular publication. Now the first three papers on the taxonomy and fossil history of these two families, resulting from many years of study of these mollusks, have been published (Beu & Cernohorsky, 1986; Beu, 1986; Beu & Knudsen, 1987).

In the first paper, the priority of Ranellidae Gray, 1854 over Cymatiidae Iredale, 1913 is established; the subfamilies Ranellinae Gray, 1854, Cymatiinae Iredale, 1913, and Personiinae (formerly Kuroda et al., 1971) are recognized; and Bursidae Thiele, 1929 remains unchanged. Additionally, the genus *Linatella* Gray, 1857 is shown to consist of *Linatella* s.s., with species *caudata* (Gmelin, 1791) and *weigmanni* (Anton, 1838); and *Gelagna* Schaufuss, 1869, with species *succincta* (Linne, 1771). *Cymatium* (*Ranularia*) *cynocephalum* (Lamarck, 1816) is shown to be the correct name for the species usually cited as *C. (R.) moritinctum* (Reeve, 1844) or *C. (R.) caribbaeum* Clench & Turner, 1957.

The second paper, by its nature the most extensive of the three, describes as new, fourteen species and subspecies of Ranellidae and six of Bursidae, and makes detailed comparisons of related species. Significant changes in synonymies are provided. The genus *Bursa* is demonstrated to consist of *Bursa* s.s. and *Colubrellinae*. Other genera included are *Bufonaria* (*Bufonaria* s.s., *Marsupina* and *Aspa*) and *Tutufa* (*Tutufa* s.s. and *Tutufella*).

The final revisionary paper published to date covers the four species of *Cymatium* (*Turritriton*), a subgenus in which the primary spiral cords each bear three high, narrow riblets. Species included in *Turritriton* Dall, 1904 are three living — *labiosum* (Wood, 1828), with circumtropical distribution, *gibbosum* (Broderip, 1833), Panamic province; and *kobeltii* (von Maltzan, 1884), West Africa; and the fossil *domingense* (Gabb, 1873), Dominican Republic. These three papers exemplify the type of thorough work that is so essential and welcome

to both collectors and scientists.

It is certainly true that the careful molluscan taxonomist must have highly developed detective abilities. This fact is illustrated by the well-crafted paper by Rosenberg & Petit (1987), which details their investigative efforts to establish the publication date of an obscure work on Belgian invertebrate fossils, Ryckholt's *Mélanges Paléontologiques*, 1851-1862. In this early work, several hundred new taxa are described and illustrated. Thorough research by the authors determine that Ryckholt's 1862 use of the genus-level taxon *Tudicula* antedates *Tudicula* H. & A. Adams, 1864.

Since the Adams' name has been a source of some confusion with *Tudicla* Röding, 1798, a genus with one living species that is also a member of the family Turbinellidae, a replacement name *Tudivasum* was introduced for those taxa commonly referred to the synonymous *Tudicula* H. & A. Adams, 1864. Six living species are referred to *Tudivasum*: *armigerum* (A. Adams, 1856); *inermis* (Angas, 1878); *kurtzi* (Macpherson, 1964); *rasilistoma* (Abbott, 1959); *spinosum* (H. & A. Adams, 1864); and *zanzibaricum* (Abbott, 1958). This paper will also give us the opportunity to update our collections, and again is an excellent example of the type of solid revisionary research so clearly needed in malacology.

American Museum of Natural History, New York

## REFERENCES:

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- Hughes, R. N. & W. K. Emerson. 1987. Anatomical and taxonomic characteristics of *Harpa* and *Morum* (Neogastropoda: Harpidae). Veliger 29:349-358.
- Rosenberg, G. & Petit, R. E. 1987. R. E. Ryckholt's *Mélanges Paléontologiques*, 1851-1862, with a new name for *Tudicula* H. & A. Adams, non Ryckholt. Proceedings, ANSP 139:53-64.

## WSM MEETS IN JULY

The 21st Annual Meeting of the Western Society of Malacologists will be held July 17-21, on the campus of Sonoma State University in Rohnert Park, California. Contributed papers are welcome on all aspects of molluscan neontology and paleontology, including research on terrestrial, freshwater and marine mollusks.

A Symposium on the Biogeography and Evolution of the Molluscan Fauna of the Galapagos and a Symposium on Molluscan Herbivore/Plant Interactions will be featured. Also of interest will be a field trip to observe and collect the mollusks, living and fossil, of Sonoma County, and to tour the Bodega Marine Laboratory and lobster mariculture facility.

For further information about the WSM Meeting, write Matthew J. James, Department of Geology, Sonoma State University, Rohnert Park, CA 94928. Phone: (707) 664-2334 or 2301.

## DID YOU KNOW?

About the Florida Paleontological Society? It may be of interest to those shellers who like fossils. Dues are \$10 per year. Contact Anita Brown, FPS Secretary, Florida State Museum, Museum Road, Gainesville, FL 32611.

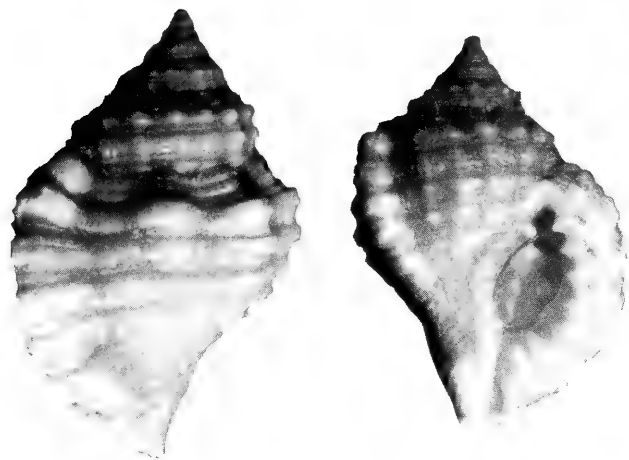
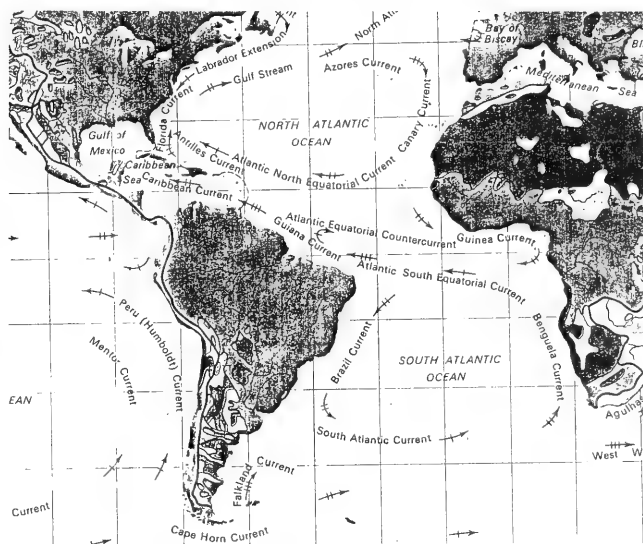


Photo by Ted Kalafut

*Cymatium tranquebaricum* (Lamarck, 1816) Actual size: 30.07 mm. Approximately 2-3mm are missing from siphonal canal.



## AN OCCURRENCE OF *CYMATIUM TRANQUEBARICUM* IN FLORIDA

by Ted Kalafut

Back in February of 1978 I collected a live *Cymatium* from a lobster trap on Stock Island, outside Key West. The fresh stack of traps had been pulled from the ocean bottom just hours earlier and were still dripping wet; the assorted marine life attached to the wooden slats and concrete of the traps was still making those tell-tale "crackling" sounds unfortunate sea creatures make when abruptly thrust into the air and stranded in the hot, bright sun. My little *Cymatium* sat in full view on the very edge of the trap and I was the lucky collector to first spot it.

Being unable to identify the species as any known Caribbean *Cymatium*, I assumed it to be a hybrid of some kind, and it has sat in my cabinet for years labelled, "*Cymatium* species." But recently, Dr. H. C. Lee of Jacksonville, Florida speculated that it may be a West African species, *Cymatium tranquebaricum* (Lamarck, 1816). After examining a picture of that species and literature about it which Dr. Lee sent, I realized that this was indeed my "mystery shell." Later research confirmed the identification.

*Cymatium tranquebaricum* is an uncommon species which has West Africa, including the Cape Verde Islands, as its range. It has also been reported from Venezuela. Its presence on both sides of the Atlantic is undoubtedly due to the pattern of ocean currents in the Atlantic and to the very long veliger stage (as much as 3 months) characteristic of most Cymatiidae and Bursidae.

How a species such as this can traverse the ocean is easily explained. The warm water called the Guinea Current, which pushes southward along the West African coast, can transfer various floating veligers

to the westward-flowing Atlantic South Equatorial Current which, in turn, connects with the northwest-flowing Guiana Current travelling along the northeast coast of South America. This flow of water is in turn called the Caribbean Current when it brushes Venezuela and pushes through the middle of the Caribbean Sea, far from land, into the clockwise flow of the Gulf of Mexico.

If conditions are right, and a larva is of sturdy stock, it may be transported in this way to a habitat favorable for growth to the adult stage off Florida before it can be swept north by the Gulf Stream to perish in the colder temperatures. This is what must have happened to my specimen.

These same ocean currents are also responsible for the occasional Caribbean occurrence of other predominantly West African species such as *Cymatium trigonum* (Gmelin, 1791). On the same note, I collected a live *Bursa grayana* Dunker, 1862 — *Bursa pacamoni* Matthews & Coelho, 1971 is a synonym — off the middle Florida Keys in 1977. This shell is Brazilian and a good number of them have been found in recent years far north of their normal range: Curacao, the Florida Keys, off the southeast Florida mainland, and South Bimini Island in the Bahamas.

Many other species have a widely scattered range due to long larval stages and a knack for hitch-hiking on benevolent ocean highways. So finding a West African *Cymatium* in Florida really shouldn't have surprised me.

\*Cymatiidae is now known under the name Ranellidae.

## WORLD SIZE RECORDS

Robert J. L. Wagner and R. Tucker Abbott, editors of the *Standard Catalog of Shells* are compiling additions and corrections to Supplement 3, the 1985 edition of "World Size Records." As space permits, these changes will appear in the pages of *American Conchologist*.

This section contains many changes that are needed to correct the 1985 Supplement of World Record Sizes.

Page 80-001; Senior Editor's new address — 19751 S.W. 79th Court, Miami, FL 33189. Fourth Paragraph, starting with "Maximum sizes," delete the next four words, "taken in any direction" because they are misleading.

Genera	Species
Acanthina	grandis, muricata, tuberculata to Neorapana
Astraea	phoebia; Toni Wood deceased — new owner not known.
Austrotrophon	pinnatus; name changed to cerrosensis pinnatus
Barbatia	reeviana; change spelling to reeveana

Bursa	spinosa; name changed to echinata (spinosa is a syn.)
Busycon	spiratum; Helen Denny deceased — new owner not known.
Callanitis	Change spelling to Callanaitis
Calliostoma	tigris; place under new genus Maurea
Chama	arcana; remove word pellucida
Cardium	hians; change owner to Larry Strange
Cittarium	pica; change owner to Larry Strange
Cochlispira	Change spelling to Cochlespira
Codakia	distinguenda; Owner is Kirstil, not Kerstil
Colubraria	maculosa now muricata (maculosa is a syn.)
"	sowerbyi; change spelling to souveryi
Conus	architalasus; change spelling to architalasu
"	architalasus; species changed to ammiralis architalasu
"	crocatu; species changed to colubrinus crocatu
"	fuscoflavus; is a synonym of cuneolus
"	lithoglyphus; change spelling to litoglyphus
"	moreleti; owner is Takahashi, not Takuhashi
"	marchonatus; change spelling to marchionatus and species changed to nobilis marchionatus

## THE COA GRAND TROPHY



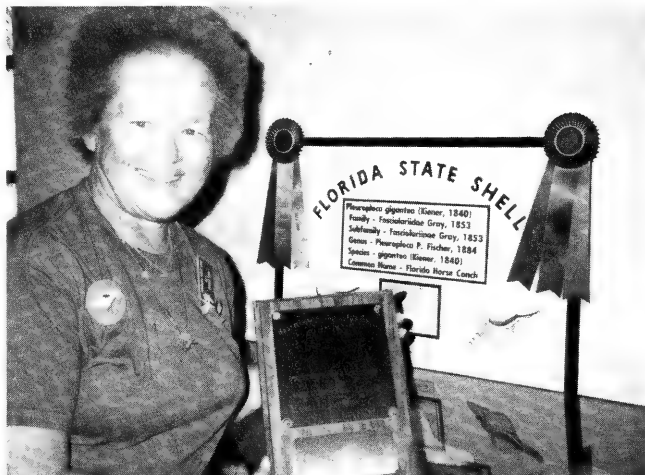
Kathy and Ed Sarkin receiving their COA Trophy at the Treasure Coast Shell Show from President Ted Jacaruso for their exhibit on Terebridae.



Barbara and Rob Masino with their COA Trophy from the Sanibel-Captiva Shell Show for their self-collected exhibit, "Between Gulf Tides; Shelling Sanibel-Captiva."



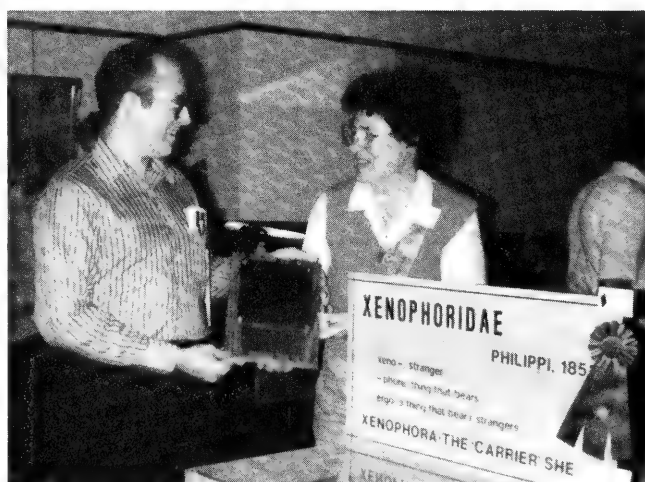
Jerry Harasewych presenting Marion R. Magee with her COA Trophy at the North Carolina Shell Show for her exhibit, "Worldwide Muricidae."



Bet Hamilton and her COA Trophy from the Marco Island Shell Show for her educational exhibit on *Pleuroploca gigantea*, the Horse Conch.



Virginia Lee showing off her COA Trophy for her exhibit on Strombidae at the Southwest Florida Conchologist Society Show in February.



Judge Walter Sage with the COA Trophy winner at the St. Petersburg Shell Show, Doris Underwood and her exhibit on the Xenophoridae.



Ted Kalafut with his COA Trophy-winning exhibit on the Shells of the Bay Islands, Honduras, at the Greater Miami Shell Show.



Photo by Alan Walker

Judges Harry Lee and Walter Sage present Dr. Alfred Romeu (left) with the COA Trophy at Astronaut Trial Shell Show for Dr. Romeu's exhibit on Cuban *Polymita*.



Tom Walker, COA Trophy winner at the British Shell Collectors Club Show in London, last October. Tom (left) and Club Member Ken Wye are examining Tom's winning display on self-collected shells from Jamaica.

## GOING SOUTH? COME SHELL CAROLINA!

by Steven M. Rosenthal

For the snowbirds among our readers, and for those conventioners who will be motoring their way southward, here is a short list of some favorite North Carolina shelling spots. All offer temporary relief to the anxious sheller who cannot sit still during the long trip to Florida (or Charleston) without first sampling a succulent taste of things to come.

**Harker Island.** The shallows along the bay side of the island on the east side of the bridge joining the island to the mainland support a nice assemblage of species, including many typically Floridian shells, such as Banded Tulips, Busycon whelks (Lightning, Knobbed and Channeled), Atlantic Cockles, Pink Cockles, and Disk Dosinias, to name a few. On our first trips here we logged over fifty species!

**New River Inlet.** A nice sandy beach marks the north tip of Topsail Island, and a prime shelling beach it is! Every trip seems to result in something different, and the time of year seems to strongly influence what you find. Sculptured Tops, Chestnut Turbans, Pitted Murex, Oat Marginellas, Southern Moon Snails (*Natica pusilla*), *Semele bellastrata*, *Corbula contracta*, and single valves of the Lion's Paw Scallop are just a few of the finds you might expect. Springtime is best, as huge numbers of worm shells, keyhole limpets, Spiny Slipper Shells and others appear in the drift, along with ark shells (three species), winged oysters, and my favorite from this site, *Erato maugeriae*, a small, pretty shell related to the cowries. Unfortunately, access to this beach is becoming increasingly difficult due to the steady encroachment of seaside condominiums, a common nuisance for the North Carolina sheller (unless you own one).

**Holden Beach.** A consistently rewarding beach on the Atlantic, never failing to delight the dedicated beachcomber. Such typical species as the Atlantic and Concave Augers, Common Baby's Ear, and Lettered Olive are common. A special treat is the echinoid fossils that seem to be omnipresent. These extinct relatives of sand dollars resemble today's sea biscuits. These fossils often contain rock-boring bivalves from the genera *Rocellaria*, *Rupellaria*, *Lithophaga* and *Diplodonta*, and provide hours of entertainment for the chisel-and-hammer-wielding collector on rainy days and cold winter nights. Wentletraps and fossilized sharks' teeth are also frequent finds.

**Scallop Piles.** Yes! These meccas draw shellers from all over, but, like nomads, the piles seem to pick up and move from place to place. Recently, Millis' Seafood in Sneads Ferry (a very small town by New River Inlet) had featured Calico Scallop piles trucked up from Port Canaveral, with many of the other attendant species. Most recently, however, local Bay Scallops and oysters have replaced the Calicos in the piles. With them, one finds Hooked Mussels, large *Thais haemostoma*, *Nassarius vibex*, Banded Tulips and Pink Cockles.

The state's "official scallop piles," in South River at the end of the road through Merriman, have recently featured *Placopecten magellanicus*, with lots of hitch-hiking cup-and-saucer shells (*Crucibulum*), *Arctica islandica*, *Buccinum undatum*, and other northern species. (I'm not sure just where these were brought in from — the site is accessible via Bogue Inlet as well as Pamlico Sound.) The famous Williston, North Carolina scallop piles of the 1960's and 1970's are now completely gone, but some equally productive molluscan refuse may turn up any time, any place, so you should make it down here, and keep your eyes and ears (and nostrils) open.

Reprinted from *Irradians*, 14(6):8,  
Bulletin of the Long Island Shell Club, Inc.

### DID YOU KNOW?

That the cover of the *Oregon Shell Club Monthly Newsletter* is designed and hand-colored by Editor Maxine Hale? What a labor of love! Membership is \$7 per year, payable to Secretary (and COA member) Byron Travis, 4324 NE 47th Street, Portland, Oregon 97218.



## OLD FRIENDS, NEW FRIENDS WHY COLLECT SHELLS?

by Dr. Bryon W. Travis



Shell collecting is a sort of outward activity and inward appreciation which is difficult to describe. Actually, I have loved the sea ever since I first saw it when I went to school in Los Angeles. My earlier years in Kansas and Colorado made me realize that here was something I had really missed.

School was a bit dull and tiring at times, so I went to Redondo Beach about sundown one evening and hiked around the point. As it became dark, I heard strange sounds coming from the rocks around me. Investigation determined that odd creatures were rattling their claws over the rocks, and led me to understand something about the vast amount of life there must be in the sea.

After that, I made another trip to the beach now and then, finding a few shells, and my collecting instinct and investigative mind were hooked forever.

Later, my wife and I lived for a time at Encinitas where I was a minister. Among those who came to services was a man named Carl Young and his wife. He had spent a year in Hawaii, because of a stroke, and collected shells in that paradise of conchology. We walked together, picking up shells and talking about them. He shared the many he'd collected in Hawaii. Once we were isolated by a bad storm for almost a week. The storm also piled on the beach a vast amount of seaweed laden with living shells. What a treasure we had! My collecting instinct was blessed, and fed.

Carl and I went one day to San Juan Capistrano to gather the then abundant abalones for food. Standing in knee-deep water at a very low tide, I soon learned to handle my tire iron and gather as many

as I wished. But then I dropped one. A large arm, followed by several others, grabbed the abalone. I grabbed back because the abalone was a good specimen, and I was engaged in a tug of war with my first octopus! It wasn't a large one, perhaps six feet from tip to tip, so I won, and my collection grew and I learned some more about the sea.

Through the years, I studied, and corresponded with Burch and Webb and others, as well as my old friend Carl Young. My shells came to rest in fine glass cases where I looked at them with delight. And as we vacationed on Oregon beaches, we became interested in agates, searching for them on beaches and prairies, cutting and polishing the beautiful stones. And my collection grew.

It wasn't until I neared retirement in 1968 that I was able to indulge my hobby intensively. I found a few other interested folk who met informally now and then, and the group grew into the Oregon Society of Conchologists for which I have been secretary for many years. Oregon collecting requires diving and I do not even swim. But friends do, and my collection increased. I began to write for Tom Rice's *Of Sea and Shore*, learning, meeting other collectors who helped me a great deal. I subscribed to *Hawaiian Shell News*, then *La Conchiglia*, and bought BOOKS! How I delighted in them!

I soon found we hadn't space for a large general collection, so came to specialize in Xenophoridae and Haliotidae. Assembling a fairly complete collection of them has kept me busy. And I became close friends with Kate St. Jean and Gene Mallory who studied them very carefully. By joining COA we widened our association with other collectors.

I've learned that as we share the hobby, our enjoyment of it and of our vast oceans is intensified. Thanks to the many friends I've made who blessed me with their knowledge and their sharing, 62 years of my life have been intensely interesting.

4234 NE 47th Avenue, Portland, OR 97218

### VERONICA PARKER JOHNS 1907-1988

With the passing of our friend Veronica on April 14 and the closing of her Seashells Unlimited, 590 Third Avenue, Manhattan, the New York shelling scene has lost a unique and irreplaceable person/institution. Veronica had owned and operated her shop for nearly 25 years and had been associated for the previous ten years with her cousin, Crosbie McArthur at his McArthur's Shell Shop at two other locations in Manhattan.

Most of us knew Veronica primarily through shells; but this was just one facet of this multi-talented lady. Richard Goldberg shared with us his personal reminiscences in the April 1988 *Irradians*, and in 1979 Mary Ruth Foglino profiled Veronica, complete with photograph, in the *Long Island Shell Club News*. There have also been articles in various local newspapers. Veronica was a past president and loyal member of the New York Shell Club, original member of the Long Island Shell Club and Conchologists of America, and member of American Malacological Union and probably other shell clubs.

Prior to her introduction to shells, Veronica had been a noted mystery writer, with five novels (I'm reading them now and enjoying her witty and animated writing style) and numerous short stories, some adapted to television, to her credit. Though she had ceased writing when shells "took over" her life, she continued to be a vital member of Mystery Writers of America for over 40 years. She attended every opera, concert, theater and artistic production that came to Manhattan; was active in local political life; and was loved by friends and acquaintances alike.

Veronica chose that her body be available for medical research, and made provision for her shell books and the rest of her library. She had been very fond of Bill Old, my predecessor at AMNH, and those closest to her requested that contributions to her memory be made to the William E. Old Fund, Dept. of Invertebrates, American Museum of Natural History, to the attention of Walter Sage. We have already purchased in her memory a gem specimen of the spectacular Australian volute, *Cottonia nodiplicata* Cox, 1910. I am very proud to have known this great lady of shelling, and will fondly remember Veronica when I think of this special shell — I think she and Bill Old would be pleased

— Walter Sage  
American Museum of Natural History

## SHELLS IN PRINT

by Richard L. Goldberg

## COA BULLETIN BACK ISSUES

There are many informative and interesting articles contained in the back issues of the **COA Bulletin/American Conchologist**. They are available at a cost of \$2.50 — issues prior to 1985 are \$1.00 — Write Bernard & Phyllis Pipher, 1116 "N" Street, Tekamah, NE, 68061, for information about their availability. Below is a list of some articles contained in these back issues. An asterisk \* means the article is illustrated.

- Issue #16 (1979) — Speaking of Shells/Murex loebbecki \*  
Collecting Mollusks for the Aquaria
- Issue #17 (1979) — A Trio of Textiles/Conus euetrios, eumitus & elisae \*  
New Zealand Tonnidae \*
- Issue #18 (1979) — Speaking of Shells/Pterynotus miyokoae  
A Dredging Trip to Barbados, West Indies \*
- Issue #19 (1980) — Another Rare Cypraea for the Philippines \*  
Behind the Discovery of the Second Cypraea thomasi \*  
In Search of New Zealand's Subtropical Shells
- Issue #20 (1980) — Western Atlantic Pterynotus \*  
Freak Land Shells \* [2 short illustrated articles]  
Don't Underestimate the Tourist Spots/Sand Key \*
- Issue #21 (1980) — New West Panama Ovulid \*  
Shelling Notes from the Florida Keys \*  
Two Records for the Keys \* [world size records of Mitra florida and Leucozonia nassa]
- Issue #22 (1980) — The Conus moluccensis Complex \*  
Deepwater Philippine Shells/Mitres & Turrids \*  
Shelling the Southwest Coast of Taiwan
- Issue #23 (1981) — More on the Conus Moluccensis Complex \*  
A Rare Mexican Colubraria \*  
Cypin' in the Florida Keys \* [Cypraea]
- Issue #24 (1981) — Those Fabulous Festilyria \*  
The Marginella of Southeast Asia \*  
Micro Marginellas from Florida and the Caribbean \*  
Shelling in the Turks & Caicos \*
- Issue #25 (1981) — Speaking of Shells/Cypraea porteri \*  
Newly Named Nassarius/N. troendleorum \*  
Further Comments on the Conus moluccensis Species Group \*
- Issue #26 (1982) — Distributional Range of Cymatium parthenopeum \*  
Eleuthera . . . Several Times
- Vol. 10 #3 (1982) — California Seashells Part I: Ceratostoma (Muricidae) \*  
Shells in Print \* [many new species illustrated]
- Vol. 10 #4 (1982) — California Seashells Part II: Pteropurpura (Muricidae) \*  
Marginella tessellata Rediscovered \*  
Shells for the Amateur \*
- Vol. 11 #1 (1983) — California Seashells Part III: Haliotis \*  
A South American Solaropsis \* [land shells]  
Shells for the Amateur \*
- Vol. 11 #2 (1983) — California Seashells Part IV: Trochidae \*  
A Rare Rostrate/Cypraea gracilis macula \*  
Shells for the Amateur \*
- Vol. 11 #3 (1983) — California Seashells Part V: Turbinidae \*  
Night Diving — Kwaj Style \* [Kwajalein Atoll]  
Sarasota Fossils \*  
Notes on Murex/Murexiella bojadorensis \*
- Vol. 11 #4 (1983) — California Seashells Part VI: Maxwellia (Muricidae) \*  
Notes on Murex/Monstrotrochis tosaensis \*  
Kwajalein's Surge Channels \*
- Vol. 12 #1 (1984) — California Seashells Part VII: Coralliophilidae  
Tiny Philippine Favartias \*  
A Few More Words About Cymbiola marispuma \*  
Kwajalein's Coral Pinnacles \*  
Shells for the Amateur \*
- Vol. 12 #2 (1984) — The Genus Cerion, An Unusual Group of W.I. Land Shells \*  
New Philippine Cones \*  
Tampa Bay Shells \*  
Queen of the Caribbean \* [Strombus gigas]
- Vol. 12 #3 (1984) — Philippines Pterynotus (Muricidae) \*  
Two Remarkably Keeled Land Shells \*  
Latiaxis Look-Alikes \*
- Vol. 12 #4 (1984) — Remarks on the Systematics of the Genus Homalocantha \*  
Homalocantha (Muricidae) — A Pictorial Addendum \*  
California Seashells Part VII: Mitridae \*

- Vol. 13 #1 (1985) — California Seashells Part VIII: Bursidae \*  
Florida Fossils Part II \*  
A Sinistral Strophocheilus \* [land shells]  
Philippines Latiaxis \*
- Vol. 13 #2 (1985) — California Seashells Part IX: Pecten, Hinnites, Chama \*  
[color issue]  
Those Amazing Mactan Muricids \*  
On The Differences Between 3 Related Homalocantha sp. \*  
Illustrations & Comments on Typhina pauperis \*
- Vol. 13 #3 (1985) — California Seashells Part X: Cancellariidae \*  
[color issue]  
Diving for Conus crocatus \*  
Strombus taurus — The Marshallese Bull Conch \*  
Illustrations & Comments on Typhina yatesi \*
- Vol. 13 #4 (1985) — A Classification & Catalog of Living World Ranellidae  
(= Cymatiidae) and Bursidae \*  
Notes on Coralliophila abbreviata & Galea \*
- Vol. 14 #1 (1986) — California Seashells Part XI: Triviidae \*  
Comments on Murex cuspidatus \*  
Observations on (?Favartia) paulboschi \*  
On the Generic Placement of Muricopsis oliverai \*
- Vol. 14 #2 (1986) — California Seashells Part XII: Cypraea \*  
[color issue]  
The Short Happy Life of Vitularia linguabison \*  
Remarks on Pterynotus (Marchia) tripterus \*  
Thailand's Phuket Island \*
- Vol. 14 #3 (1986) — California Seashells Part XIII: Megasurcula \*  
Conus coromandelicus \*  
Morphological Variation in Muricodrupa jacobsoni \*

## Philadelphia Shell Show in October

For only the third time in its thirty-year history, the Philadelphia Shell Club will hold a non-competitive shell show this year. The event will take place October 22 and 23 at the Academy of Natural Sciences of Philadelphia. For further information, contact Al Schilling, 419 Linden Ave., Glenside, PA 19038. Telephone: Daytime — (800) 345-1123, ext. 5807. Evenings — (215) 886-5807.

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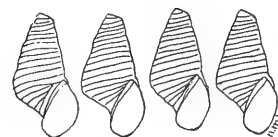
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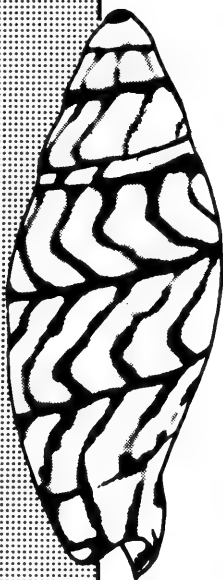
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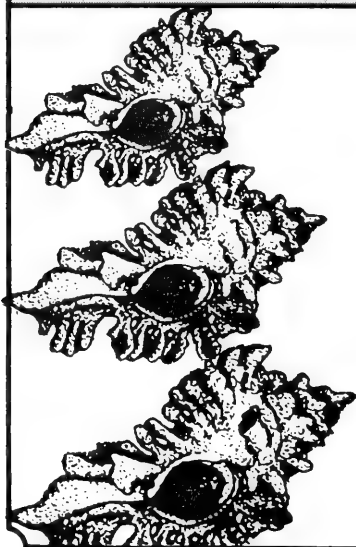
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# **AMERICAN CONCHOLOGIST**

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 16, NO. 3

SEPTEMBER 1988



# CONCHOLOGISTS OF AMERICA, INC.

**A Collective Devotion To  
Advancing-  
Conchology.**

In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and world. An annual convention is held each year in a different part of the country.

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## MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January.

**INDIVIDUAL** (per year) \$10.00; **FAMILY & CLUB** (receiving one *AMERICAN CONCHOLOGIST*) \$12.50; **OVERSEAS** (Air Mail Postage) \$20.00. New members send check or money order to the **MEMBERSHIP CHAIRPERSON** Bobbie Houchin, 2644 Kings Highway, Louisville, KY 40205. Renewals are sent to the **TREASURER**. Back issues are available from Mrs. Houchin @ \$2.50 each.

**COVER:** The graceful Santa Cruz Latiaxis displays its exquisite sculpture, fashioned in the inky darkness off the Galapagos. (*Latiaxis santacruzensis* Emerson & D'Attilio, 1970; X5. Photo by Hal Lewis.)

## OOPS!

In the June issue of *American Conchologist*, we ran an article by Vivienne Smith, entitled "Habitats: Where Do Shells Live?" as our June selection for "Best of the Newsletters." But somehow our Gremlin ate the italic paragraph explaining that the newsletter Vivienne writes for is the Sanibel/Captiva *Junonia*. We are grateful to *Junonia's* editor, Pam Scott, for calling this to our attention, and wish to offer our apologies to her and to all the rest of the Sanibel/Captiva crew. They're a great bunch!

## PRESIDENT'S MESSAGE

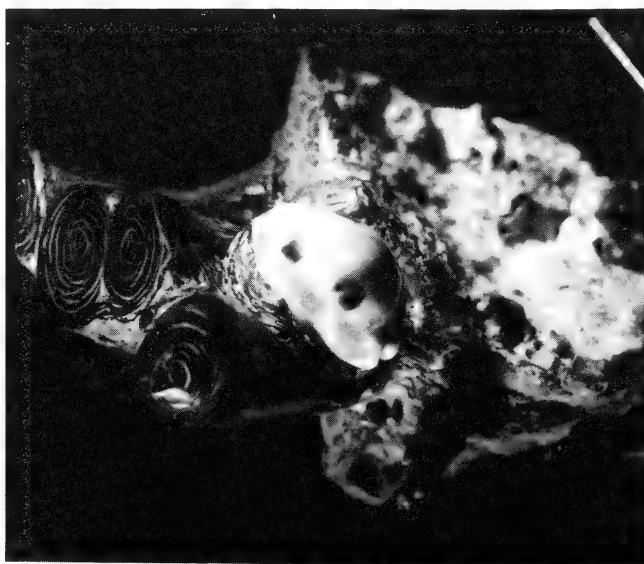
As new officers are installed, it is useful to employ this benchmark to assess the events of the past year for our organization. The "Sweet Sixteen" Convention in Ft. Myers, the largest and most extensive convention yet, demonstrates the success of our organization and where we are headed. COA members came from across the United States, Central and South America, and the Pacific, to attend a fabulous convention. The COA Convention, hosted by Southwest Florida Conchologist Society, demonstrated how conchologists, as individuals or as club members, can work together to have an educational, informative and fun convention. These COA conventions provide a national, and increasingly an international, forum for conchologists to meet and learn from one another.

The outgoing officers of COA deserve our recognition and appreciation for a job well done. President Don Young has worked tirelessly over the past year to increase membership and provide better visibility and effectiveness for the organization. Mary Ellen Akers managed the office of Secretary with such quiet efficiency and care as to make that difficult job look easy. Executive Board members Twila Bratcher, Richard Goldberg and Glenn Deuel, reflecting the wealth of varied geographical and conchological backgrounds, provided guidance and sound stewardship for the organization. We offer our thanks for their generous donation of time and efforts to make COA a success.

We have a new constitution and new officers. Let's assist them with our advice and efforts to make our organization as meaningful and responsive to our needs as possible, so that it can promote the interests of shell collecting everywhere.

As our year takes us from a convention in the great southwest of Florida to our next convention in the great American Southwest, San Diego, California, our future is bright. Until we meet again in San Diego, we pray, as the Ancient Mariner prayed, for the upcoming year to bring us "a calm sea and a prosperous voyage."

ALAN



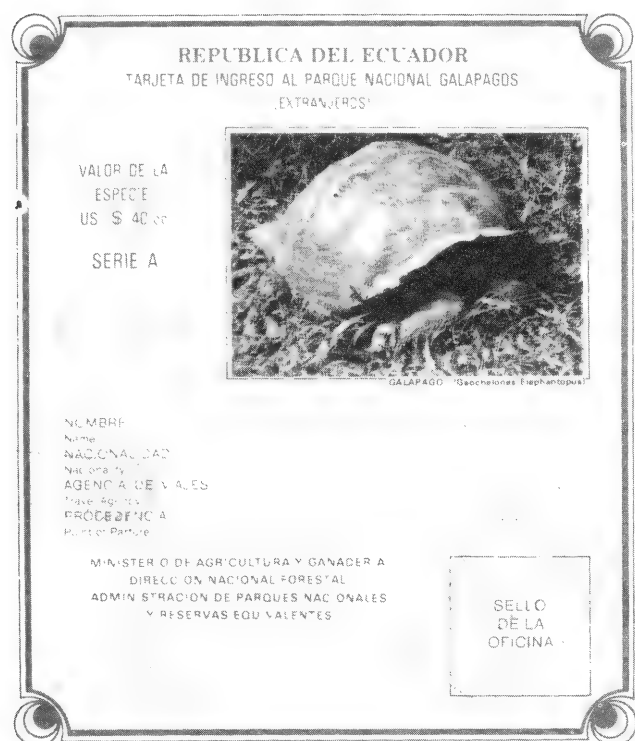
## Shells caught in strange predicaments

**Encased in coral:** A jeweler in Hawaii, working with a piece of Hawaiian black coral, noticed a strange bulge and curiosity caused him to carefully "peel" away the coral in this area which led him to discover this perfectly preserved specimen of *Cypraea tessellata* Swainson which apparently had fallen between the branches of the coral which had then grown around the shell. Photo by Glass & Foster, The Abbey Specimen Shells, Santa Barbara, CA.

## SHELL COLLECTING AND THE GALAPAGOS ISLANDS

by Wayne Harland

PART 2



Entry permit for the Galapagos Islands.

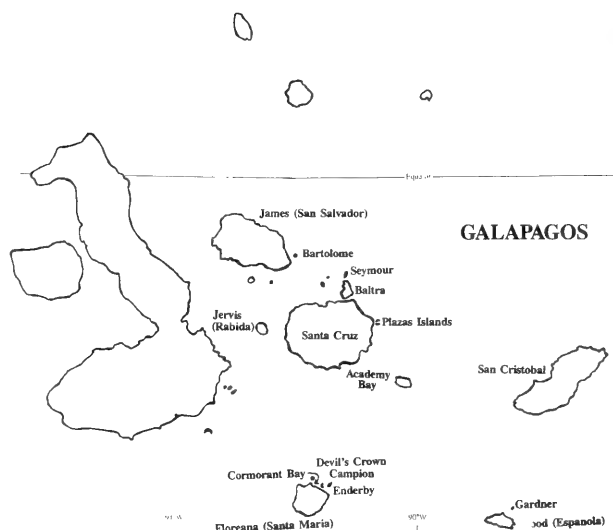
Part 1 covered the background information on the purpose and exploration plan for our dive cruise through the Galapagos. Now, let's go collecting!

We departed from a rainy, dreary airport in Guayaquil, Ecuador for our 600 mile flight to a week-long journey through the "Enchanted Islands." As if the script was written by a travel agent, the sky cleared and we could see the Galapagos out the windows of our aircraft, green and amber patches in the deep purple-blue of the ocean. As we passed over the eastern islands of Hood and San Cristobal, we could see the large eddies created by the meeting of the various currents bathing these beautiful islands.

After we landed and paid our \$40 entry fee and had our passports stamped with the Galapagos Tortoise emblem, we departed for the port of Baltra, and our waiting dive boat, the NORTADA. We traveled easily, but our baggage took longer, because Dr. Donald Shasky had brought along every available five-gallon bucket in Southern California. The unloading of our equipment and supplies transformed this elegant cruising vessel into a satisfactory research vessel. After hearing the mandatory explanation of the rules and restrictions of our collecting permit, we hauled anchor and proceeded to our first dive site.

## Day 1 — Dive Site 1 — Baltra Island

A half-mile cut between the north end of Baltra and Seymour Islands was the site of our first Galapagos dive. The shoreline was a straight vertical cliff looming 60-100' above the water, with many large boulders at its base. We anchored close to shore in 90'. As was often the case, there was a swift-running current. When we entered the water we were pleasantly surprised at the 70° surface temperature, but as we descended, that rapidly changed. At 30' the water temperature dropped to the mid 50's! To a Caribbean diver used to 80° water, it felt like a taste of the Antarctic.



The shelling habitat was primarily very large boulders with minimal coralline algae and moderately coarse sand at the bottom. The sand composition was predominantly broken barnacles rather than coralline or silica sand. Rock dwellers were out in force: *Murex princeps* Broderip, 1833, *Latirus sanguineus* (Wood, 1828), *Pterotyphis lowei* (Pilsbry, 1931), and *Conus diadema* Sowerby, 1834 were all represented. At the base of the vertical cliffs in the sand and rubble we found *Conus lucidus* Wood, 1828, *Terebra ornata* Gray, 1834, and a colorful endemic, *Drillia albicostata* (Sowerby, 1834). After we surfaced, we discussed our surprise at the lack of coral formations and the coarse sand composition. We asked to proceed to a nearby island where a coral and sand habitat could be found.

## Day 1 — Dive Site 2 — Plazas Islands

The captain and guide suggested that we try a night dive at the Plazas Islands, where we might find a more suitable habitat for nocturnal-feeding sand dwellers. We anchored in a protected horseshoe-shaped bay in the Plazas Islands on the eastern shore of Santa Cruz Island. The water was relatively warm, there was some active coral growth, and current was minimal. We saw trails through the sand everywhere — a true bonanza of shells. The terebras were all over the place! The three common Panamics, *Terebra ornata*, *T. robusta* Hinds, 1844, and *T. strigata* Sowerby, 1825 were all abundant. And a more rare species, *T. plicata* Gray, 1834 was also here. Live specimens of *Bulla gouldiana* Pilsbry, 1895, *Conus lucidus* and the colorful *Columbella haemastoma* Sowerby, 1832 were also collected. My biggest disappointment came on this dive. I came across a two-inch wide trail in the sand and followed it for five minutes, looking for the gigantic shell that made it, only to find Gene Everson meandering along, dragging his depth gauge through the sand!

## Day 2 — Dive Site 3 — Floreana Island

The next stop on our agenda was Floreana, where our anchorage was the protected Cormorant Bay. Offshore, towards the east were three islands, Devil's Crown, Campion and Enderby. Our first dive took us to Devil's Crown, a roughly circular, craggy island with large pointed rocks rising from the surface, giving it the appearance of a giant tiara. Here we were to take underwater photographs. After circling the island to ascertain the direction of the current, we dropped off the dinghy. The current was so swift that my wife, who was taking pictures, could scarcely hold the camera. Our first sight was a



magnificent school of hammerhead sharks, easily over 50 of them, just lazily circling in the swift current, obviously attracted by the upwelling current and by schools of bait fish feeding in the nutrient-rich water.

We swam closer to the shoreline; shelling was virtually impossible in the severe current, and the shoreline rocks would provide protection from it. Again, we found only rock and little else. Shelling was not all that productive; the most fruitful collecting was at the shoreline level at the surface where *Thais* were abundant. The striking *Thais planospira* Lamarck, 1822, the "Eye of Judas," were quite common, but were dorsally quite eroded and covered with a very stubborn and very common purple coral which we came to call "The Galloping Purple Crud."

#### Day 2 — Dive Site 4 — Cormorant Point and Bay

We decided to make our night dive in the shallow, sandy bay where we were anchored. We were rewarded for the diligence of our earlier dive with an enjoyable, no-current night dive. Starting offshore, we worked our way out to a rocky point, finding most of the common sand dwellers — terebras, *Nassarius*, drillias and cones. Near the point, we encountered large, coral-encrusted rocks, and on these rocks we found the colorful *Latirus sanguineus*. This was one of the shells that we were particularly interested in collecting, and its habitat was carefully noted by Drs. Montoya and Shasky. The *Conus purpurascens* Sowerby, 1833 we found here were all a nearly uniform lavender color, with none of the brownish cloud patterns common to the species.

After this dive our problems started; first the air conditioning on the boat stopped working; more critical was a malfunction in the compressor used to fill our SCUBA tanks. We were rapidly turning an elegant cruise into a more spartan dive excursion.

#### Day 3 — Dive Site 5 — Enderby Island

With our now-limited tank refill capability, we could do only two dives a day. This in turn limited our capacity to seek new habitats, so we had to rely on our guide's knowledge of the islands and their habitats. She suggested Enderby Island because it provided a "stairstep" habitat of deep drops and shelflike areas down the side of the island. It was reminiscent of Devil's Crown without the strong current — very rocky with some small coral formations. Under loose rocks and coral we found several lovely *Cypraea nigropunctata* Gray, 1828 and beautiful *Conus tiaratus* Sowerby, 1833. As with most rocky habitats, there were many very large but eroded *Murex princeps*. We found several live *Conus dalli* Stearns, 1873 with a colorful *Crepidula* attached to them. Another rock dweller, *Leucozonia tuberculata* (Broderip, 1833), was tucked into crevices in the large coral boulders. For a daylight dive it was very productive, possibly attributable to the presence of live coral and coral debris at this site.

#### Day 3 — Dive Site 6 — Campion Island

Later in the afternoon we moved back towards Floreana and dove Campion Island. We found it to be much different, with warm water and very prolific coral growth. We found coral shells here, *Coralliophila nux* (Reeve, 1846), an unusual muricid, *Phyllocoma scalariformis* (Broderip, 1833), and the first live pecten of the trip, *Chlamys lowei* (Hertlein, 1935). In the deeper water under rocks, we found another endemic, *Mitra gausapata* Reeve, 1845, a very colorful little miter. An excellent night dive site, had our itinerary permitted! It was here we saw a live killer whale basking in the sun just offshore.

#### Day 4 — Dive Site 7 — Gardner Island

During our daytime hours we toured Hood Island, one of the easternmost of the Galapagos chain, and home to thousands of nesting Blue-footed Boobies and Masked Boobies. These birds have no fear of humans, and frequently nest in the middle of the foot trail used to traverse the island. Hood also hosts a large population of marine iguanas and sea lions. When we returned to the boat, our captain informed us that we would proceed to Academy Bay on Santa Cruz Island to pick up air conditioner parts and to exchange empty SCUBA tanks for full ones.

Since it was a long trip, we planned to spend the evening at Gardner Island, a very good dive site, we were assured, a sand and coral rubble site. We found the common *Terebra* and *Conus* and our first live-taken *Cancellaria haemostoma* Sowerby, 1832, a beautiful red-mouthed shell with dark dorsal bands. We found an interesting dark-colored *Strombina lanceolata* (Sowerby, 1832) and a crabbed *Fusinus dupettithouarsi* (Kiener, 1840), a nine-inch long beauty! Here the *Conus lucidus* were very large, some over 40mm, and *Conus purpurascens* were tan rather than purple or lavender.

#### Day 5 — Dive Site 8 — Academy Bay, Santa Cruz Island

While our crew was reprovisioning and repairing our air conditioning, we met with the representative of the Darwin Research Station, reviewed our itinerary and findings and laid the groundwork for subsequent visits to the Galapagos. Dr. Montoya will try to arrange use of the research station's facilities instead of a commercial cruising vessel for return trips.

We shore collected at the research station, and Don and Ursula Shasky returned with a world record *Terebra strigata*. From the way Don acted, it was quite apparent that Ursula was the lucky one. We had hoped to find evidence of *Cypraea moneta* Linné, 1758, reported from Academy Bay, but no such luck. We did find *Cypraea cervineta* Kiener, 1843, *C. albuginosa* Gray, 1825 and near-black *Conus brunneus* Wood, 1828.

After swatting flies as long as we could stand it, we returned to the boat to find the air conditioning still broken, but were overjoyed to learn that we had been invited to spend the afternoon with André and Jackie DeRoy. The DeRois have lived in the Galapagos since the 1930's, and Jackie and her daughter Tui have collected extensively throughout the islands. Tui, a world renowned photographer, was away doing motion pictures in the Falklands. Jackie, semi-retired from shelling due to the permit requirements, graciously showed us some of her personal collection, including superb specimens of a shell she was instrumental in bringing to science, *Latixis santacruzensis* Emerson & D'Attilio, 1970. We spent a truly delightful afternoon with Jackie and André, hearing about their collecting trips, and the Galapagos of the "good old days."

Back at our boat we found the air conditioning still broken and needing additional parts, so we decided to let the parts catch up later and proceeded to our night dive site, the friendly sand and warm waters of the Plazas Island.

#### Day 5 — Dive Site 9 — Plazas Islands

Since we were familiar with this area and had collected extensively in the sandy portion of the bay, we concentrated on an area where there was more coral and large rocks. We spent more time taking photographs on this dive, as well. One surprise was a *Cymatium parthenopeum keenae* (Beu, 1970) on the rocks near shore; also on these rocks, a *Mitra sphoni* Shasky & Campbell, 1964 and an unusual *Pterotyphis lowei* turned up. We found two small pectens in the coarse sand near the coral formations. *Pecten galapagensis* Grau, 1959 and *Argopecten circularis* (Sowerby, 1835). Back at the boat, we were surprised at the number of species that we found, as compared to our first stop.

Our generator was now malfunctioning, so we were also without refrigeration, and, more importantly . . . COLD BEER! This last sacrifice almost had Gene Everson and me swimming back to Academy Bay. Threatened with mutiny, the captain arranged for ice delivery, and his life was spared. We hauled anchor and departed for our most western island.

#### Day 6 — Dive Site 10 — James Island

Severe current and large waves held us to shore collecting at James. The black volcanic rock shoreline produced very striking dark specimens of common shells. Some specimens of *Conus brunneus*, *Morum tuberculosum* (Reeve, 1842), and *Cantharus sanguinolentus* Duclos, 1833 were almost black. Unusual in a tidal pool was a live *Phyllocoma scalariformis*, under a large rock in less than six inches of water.

Our dive compressor was being repaired as we shore collected, and our captain informed us that we could proceed to Bartolomé Island. I did not dive here — my ears were quite sore — but my wife dove and took pictures.

#### Day 6 — Dive Site 11 — Bartolomé Island

A steep rocky island, Bartolomé did yield some heretofore uncollected species, *Caducifer pictus* (Reeve, 1844) and a very unusual *Caducifer biliratus* (Reeve, 1846), as well as our first *Maxwellia angermayerae* (Emerson & D'Attilio, 1965), a highly sought-after endemic. Unusual for this habitat, with so little sand, was a large colony of the very colorful little bivalves, *Cardita crassicostata* Sowerby, 1825, in nooks and crannies of the rock walls of the island.

#### Day 6 — Dive Site 12 — Jarvis Island

The reddish brown structure of Jarvis Island, attributable to some ancient volcanic activity, looked different from any other island. The rusty red silica-type sand sparkled in the sunlight. The site had all the habitats we sought: rocks, sand and some coral growth at the shoreline. At dusk, before dinner, my wife Donna took an exploratory dive in the shallow water near shore and astounded me with the species she found: two beautiful *Conus tiaratus*, a very dark and smooth shouldered *Cymatium pileare* (Linné, 1758), several crabbed *Cancellaria haemostoma* and the only *Bursa calcipicta* Dall, 1908 of the trip. Seeing the specimens that she collected had a tremendous therapeutic effect; I decided, ears or not, I would dive here tonight.

#### Day 6 — Dive Site 13 — Jarvis Island

As we descended to the bottom at 40', we knew instantly that this was something different: the same rusty red sand, but covered with small sea anemones. Every anemone had a small turrid, *Drillia albicostata*, at its base. These red shells with white ribs stood out like stoplights on the bottom. We found orange *Conus purpurascens*, truly very striking specimens. As we moved toward shore, the anemones thinned out, but not before we found two *Epitonium replicatum* (Sowerby, 1844) and a newly named miter, discovered on the 1970 Ameripagos Expedition, *Subcancilla edithrexa*. As the sand became more silty, we found many pairs of *Strombina lanceolata*, perhaps together for mating, for the larger of the two usually wore mucous-like bumps, possibly egg masses. We saved specimens for scientific study.

As I panned my light toward shore, I saw what looked like a small rock, very red at the base, so I swam toward it. It was moving! And it was a large helmet shell. I thought from its size that it was a *Cassis*,

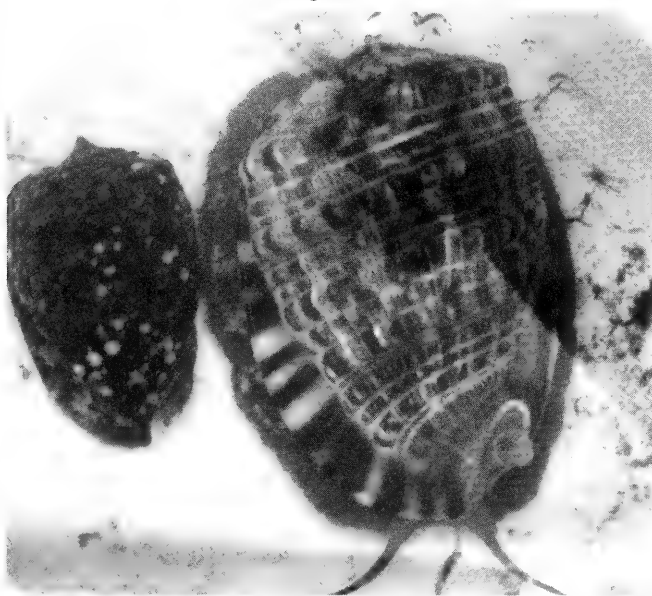


Photo by Wayne Harland

World record-sized *Cypraea tenuis*, 168mm with normal-sized specimen.

but not being totally familiar with all these Panamic species, I simply collected it and finished my dive. Back at the boat, when I reached in my bag and pulled out the helmet, Don Shasky and Kirstie Kaiser almost fell over. "Where did you get that!?" The shell was a *Cypraea tenuis* Wood, 1828 which surpassed the world size record by over an inch — living proof that you don't have to be good or intelligent to collect shells, just lucky! Gene Everson, returning much later, muttered several unprintable expressions which essentially translate into "Golly, that's a big one!" It was certainly the collecting high point of the trip for me!

#### Day 7 — Dive Site 14 — Cousin Rock

On our way to Baltra Island, we stopped at Cousin Rock, reputedly surrounded by water influenced by a warm current, thus good for collecting. As we descended, the sea lion population were more inquisitive than elsewhere. As we entered caves in the rock, they delighted in pulling us back out by our fins — needless to say, quite a surprise for us! Sea life abounded on this rock, and I think it would have been much more productive at night, but there was little sand and few rocks to turn, so collecting was sparse. We did collect some *Morum tuberculatum* and *Cypraea albuginosa*, but not much else of interest. We pulled anchor and headed for our last dive, back where we began, Baltra Island.

#### Day 7 — Dive Site 15 — Baltra Island

We anchored at sunset for our final night dive, very close to our first dive site. The cold current was still there, so we sought the comfort of shallow water. In these warmer shallows we found some coral growth and a beautiful *Epitonium billeanum*. As if on cue, we started to find other species which we had not found before — *Calliostoma mcleani* Shasky & Campbell, 1964, *Splendrillia academica* McLean & Poorman, 1971, *Carinodrillia adonis* Pilsbry & Lowe 1932, and *Tegula snodgrassi*. Then, with my last two minutes of air, I found the biggest teaser of the trip, a half of the spectacular *Lyropecten magnificus* (Sowerby, 1835). I guess it was the bait to bring me back for another visit.

Next morning we washed dive equipment and packed for our return trip to the airport. We were then treated to the most memorable sight on the trip. Everyone showered for our return to civilization, and while Don Shasky was rinsing off, our boat ran out of fresh water. Don, not having enough water to rinse off with, fumed upstairs, and an emergency radio call was made to our sister ship anchored some fifty yards away. My last impression of the Galapagos is Dr. Don Shasky standing on the front of our boat wearing only soap bubbles and being hosed down with a fire hose from a neighboring boat. But that memorable piece of malacological history went unrecorded, because everyone had used all their film.



"It's the first perfect one I've found and the Jaw is intact!"

## WANDERINGS OF AN ITINERANT MALACOLOGIST I

by Donald R. Shasky, M.D.

When I first started to collect shells seriously, in 1955, it was on a trip to San Felipe in Baja, California. Now, 33 years later, as I look back to some of the fantastic experiences that I have had, it is very difficult to sort out all the highs.

Islands have always fascinated me. Because of their isolation, there is always a possibility of finding new endemic species. There is an indescribable thrill in picking up a shell and realizing that you have something in your hand that no one else has seen previously; or if they have seen it, they did not recognize it for what it was.

I have been privileged to dive on many of the islands in the Gulf of California; at Socorro Island in the Revilla Gigedos, Maria Madre in the Tres Marias, and Salango Island, and La Plata Island, Ecuador. For the last six years, including a trip earlier this year, I have dived at Cocos Island, Costa Rica. As part of this year's trip, I was able, for the first time, to dive on several of the islands in the Galapagos.

Although I have collected intertidally on several of the islands in the Gulf of Panama, the water has never been clear enough for diving when I was there, except at Taboga and Contradora Islands. Sometime soon I hope to plan a trip to the Gulf of Panama when there are no low tides. Two other places that are on my list to get to someday are Clipperton Island, which is 600 miles off the Mexican coast, and Clarion Island, which is 200 miles west of Socorro Island.

As I have thought about these islands, as I have been writing this, I have been thinking about what I would do if I were told that I only have one more dive trip left before calling it quits. I would return to La Plata Island, Ecuador.

For those of you who might be interested, next time I will tell you why I would choose this island.

\*834 West Highland Avenue, Redlands, CA 92373

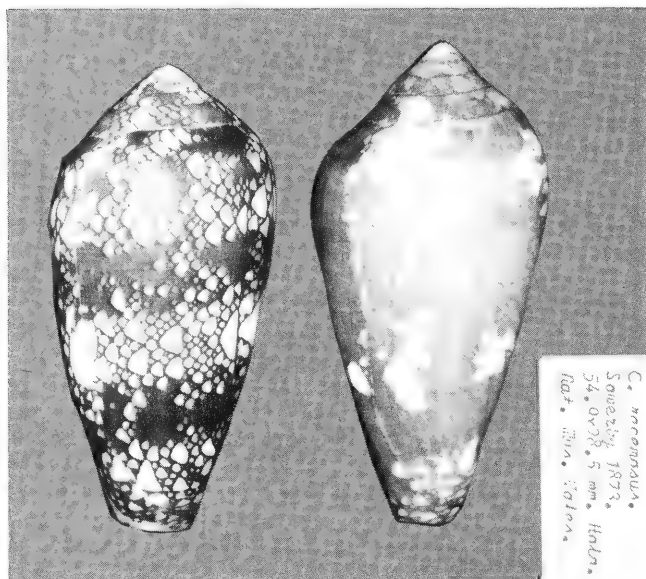


Photo courtesy of Dieter Röckel

Photo courtesy of R. M. Filmer

*Conus pennaceus* from  
Hawaii.

Holotype of *Conus racemosus*.

### CONTEMPORARY CONCHOLOGY

by Walter Sage, AMNH

*Conus racemosus* Sowerby, 1873 was described in the Proceedings of the **Zoological Society of London** from a single specimen with the locality stated as "Sandwich Islands?". Sowerby's description is as follows: "Shell cylindrically turbinated, somewhat ventricose, rather solid, smooth, rounded at upper part; spire convex; apex rather obtuse, of a brownish-orange colour, with obscure transverse lines sparingly articulated with white, and clusters of white triangular spots disposed in three distant rows." Sowerby comments, "At first sight this shell bears very much the aspect of *C. crocatus*, but is of a more ventricose and obtuse form. The disposition of the triangular white spots in distinct, distant clusters is a characteristic feature." In a footnote to this paper, which also described three land shells and eight other marine mollusks, Sowerby continues, "The *Pleurotomae*, Cone and *Pyramidella* above described were from the collection of the late

M. Frick (French Consul at Honolulu), who collected in the Sandwich Islands and also in California. It is probable that the Cone and *Pyramidella* were collected by him in the former . . . locality."

In his 1937 **Catalog of Recent and Fossil Forms**, Tomlin lists *C. racemosus* as a synonym of *C. pennaceus* Born, 1778. The *C. pennaceus* complex (a particularly appropriate word here) is a subject of much debate by students of the Conidae. Some think that a number of species can be recognized, while others are of the opinion that most named taxa are merely variations of a widely dispersed, extremely variable species. In the opinion of this writer, the clues to the identity of *C. racemosus* can be found in the locality indicated by Sowerby and in his footnote about the collector. Comparison of Hawaiian specimens of *C. pennaceus* with a photograph of the holotype of *C. racemosus*, a 55mm shell now in the National Museum of Wales, would indicate to this writer that *C. racemosus* is a specimen of the Hawaiian form of *C. pennaceus* with fewer triangular white tentings.

Until recently, the name *racemosus* had escaped involvement in the discussion of *C. pennaceus*, but in the last couple of years, specimens from Madagascar have been called *C. racemosus* — wrongly so in the opinion of this writer. In the March 1988 issue of the German Club Conchylia's **Informationen**, Röckel has a most interesting article on the many "forms" of *Conus pennaceus*, illustrated with 48 excellent color photos of *C. pennaceus* from throughout its extensive range. Many shapes and color forms are pictured, and four of the Madagascar shells are shown. What is striking to me is the similarity of the Madagascar shells to the type specimen of *C. pennaceus*. The color pattern and arrangement of triangular markings of the Madagascar shells appears very distinct from the holotype of *C. racemosus*, and much closer to a "typical" *C. pennaceus* from north Mozambique illustrated by Röckel.

Although I certainly don't expect to have the last word on this subject, I consider the name *C. racemosus* a synonym of *C. pennaceus* which could be used for the unusual, sparingly tented Hawaiian shells. The Madagascar shells which have masqueraded as *C. racemosus* are striking, often brilliantly colored and patterned specimens of *C. pennaceus*.

### PIN MONEY

We've just received notice that, by the time you read this, there'll be a new shell club pin! The **Palmetto Shell Club** has their pins available for \$3.50 plus \$1 postage. Write President Carol Boswell, 155 Dorset Drive, Columbia, SC 29210.

## COCOS ISLAND AND THE GALAPAGOS

by Gene Everson

*Cocos Island, a possession of Costa Rica, lies about 175 miles north of the Equator due west of Colombia in the Pacific Ocean. The Galapagos Archipelago sprawls across the Equator about 200 miles west of Cocos, and nearly 650 miles off the coast of its parent Ecuador. Considering their proximity, one might expect similar conditions to prevail on these islands. But there are many differences, both ecological and faunal.*

The Galapagos Islands and Cocos Island are alike in that a boat is an absolute necessity for shelling in either place. Cocos is an uninhabited tropical rain forest with no roads, no airport or even a boat dock. The desert-like Galapagos consists of 19 islands, 40 named islets and many unnamed small rocks and islets. The distances between these islands and the rocky, wave-smashed shorelines make land-based collecting an impossibility, except in the case of tide pools and a few sand beaches which are mostly devoid of shells.

The biggest difference between these two eastern Pacific equatorial areas is the water temperature. The Galapagos waters are, surprisingly, since the archipelago sits astride the Equator, much colder. However, the Cocos Island water temperature can vary considerably, depending on the meandering, warm El Niño current which bathes it.

The most interesting difference between these two islands is in the type of species found there. Both islands are included in the Panamic faunal province, but here similarities cease. The Galapagos, 600 miles off the coast of Ecuador, are quite isolated and boast a very large number of endemic species. *Cancellaria gladiator* Petit, 1976; *C. haemostoma* Sowerby, 1832; *Maxwellia angermayerae* Emerson & D'Attilio, 1965; *Latiaxis santacruzensis* Emerson & D'Attilio, 1970, *Cymatium lineatum* (Broderip, 1933), *Terebra frigata* Hinds, 1844, and *Mitra gausapata* Reeve, 1845 are a small sample from a few popular families.

Cocos Island, 275 miles southwest of Costa Rica and a Costa Rican possession, also has endemic species: *Oliva foxi* Stingley, 1984, *Olivella cocosensis* Olsson, 1956, *Phyllonotus eversoni* D' Attilio, Myers & Shasky, 1987 and many others awaiting publication. And Cocos has Caribbean species such as *Tegula maculostriata* (C. B. Adams, 1848).

But what makes Cocos Island so different is the amazing number of Indo-Pacific species found there. The most common of these is the well-known Indo-Pacific Marlin Spike, *Terebra tessulatus* Born, 1778. Some other species, better known from the Indo-Pacific, include *Terebra crenulata* (Linné, 1758); *Cypraea talpa* Linné, 1758; *C. alisonae* Burgess, 1983; *C. moneta* Linné, 1758; *C. caputserpentis* Linné, 1758; *Pseudocypraea adamsoni* Sowerby, 1832; *Mitra mitra* (Linné, 1758); *M. papalis* (Linné, 1758); *M. ferruginea* Lamarck, 1811; *Morula uva*, (Röding, 1798); the Sundial *Philippia radiata* (Röding, 1798) and *Charonia tritonis* (Linné, 1758), the Pacific Tritons' Trumpet. Cocos Island's abundance of Indo-Pacific species appears to be a result of its location in the path of the Equatorial Counter-current which can transport veligers to Cocos Island's doorstep.

Another interesting impression I've formed about the Galapagos is that they boast a number of larger than normal specimens, including several world records. In only seven days of collecting, we bested the listed record for *Cypraeassis tenuis* (Wood, 1828) and exceeded the record for *Terebra strigata* Sowerby, 1825 by 22mm. The listed size for *Mitra gauspata* of 32.5mm was increased to 37mm; *Typhis lowei* Pillsbry, 1931 increased from 23.3mm to 25.5; and *Strombina lanceolata* (Sowerby, 1832) went from 36.9mm to 38mm. A record for *Favartia purdyae* Vokes & D'Attilio, 1980 was also found. I am going to submit a 75mm *Latirus sanguineus* (Wood, 1828) and a 41mm *Oliva kaleontina* Duclos, 1835 because there is no current listing for these species.

Both islands require permission to collect in their waters. But they offer a unique experience for shell collectors, and an opportunity to visit either place should be eagerly anticipated.

## BEST OF THE NEWSLETTERS

*When amateurs write about their hobby, they tend to go in one of two directions . . . the travel article, which meets our taste for foreign places but teaches us little about our hobby; or the stiff scientific article in imitation of the professionals. John Root, COA member and Vice President of the Palm Beach County Shell Club, writes another kind of article. He uses his capacity for observation and his experience to teach us about the shells we collect and the animals that form them. His article appears in the June, 1988 Palm Beach County Seafari, edited by Lisa Mitchell.*

## SPINE STRUCTURE IN SPONDYLUS AMERICANUS

by John Root

Most people who have had much to do with *Spondylus americanus* Hermann, 1781, and that includes most South Florida shell collectors, have noted two distinct shell types among the *Spondylus americanus* they have seen. Typical shells, when in good condition, have long spines that reach well beyond the margin of the shell. In between the rows of long spines are short spines that look almost like fur. On the other end of the spectrum are shells without any long spines at all; the surface is entirely covered with short, close-set spines. These short-spined or furry types are usually found in great quantities in limited locations. My first experience with them was in a collection in Key West. They had come off a sunken Navy vessel that had been salvaged and put into dry dock. The whole ship had been literally covered with short-spined *Spondylus*. Before I got to Key West, some collectors had a field day, but when I was there, inevitable politics

had put these "valuable" shells off-limits to the public. There was much speculation about a new species of *Spondylus*. If it wasn't a new species, why were they all alike?

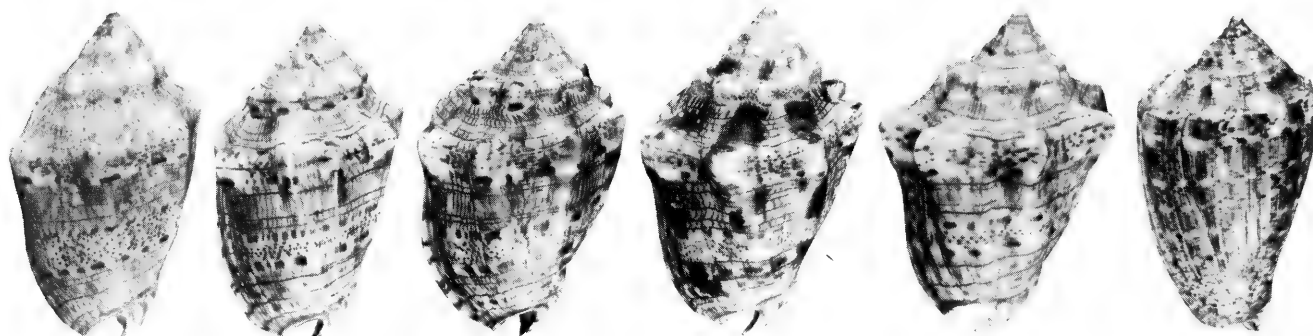
There are several wrecks off the Palm Beach area with a similar, though more limited, covering of *Spondylus*. They were the short-spined type also. Now, a new question arose. Why are all wreck *Spondylus* the short-spined furry type? There was no doubt in my mind that they are all truly *Spondylus americanus*.

Recently, while cleaning some wreck *Spondylus* that I had accumulated, I recalled diving the Mizpah, one of the wrecks in the artificial reef off Singer Island. I was collecting *Spondylus* (legal at that time) and I remembered that there were few shells inside the wreck, but they were all long-spined types. Why were the *Spondylus americanus* on the outside of the wreck short-spined, and the ones inside long-spined? In a flash of inductive reasoning, I knew.

Over the years of diving and shell collecting, I have collected *Spondylus* from reefs, from rubble. I have gotten ones with beautiful spines, and ones as smooth as a billiard ball. Numerous live shells have gone into my aquariums where I have observed them as much as you can by looking. Have you ever observed a *Spondylus*? Do you know how he makes those long, beautiful spines? He does it with his mantle. At the time that it is being made, the spine is part of the margin of the shell. The mantle is extended outward in a feathery, fingerlike projection as it builds the spine underneath.

There is one distinct difference in the water where the short-spined *Spondylus* are found and most others are found — one word — **Current**. The Mizpah is swept constantly by the strong Gulf Stream current. The *Spondylus* simply cannot hold that thin, spindly piece of mantle out in that swift ocean current. He does the best he can. The best is a short spine.





(1-4) *Voluta musica* Linné, 1758; (5) *Voluta virescens* Lightfoot, 1786.

Photos by Kevan Sunderland

## MARGARITA ISLAND, VENEZUELA

by Kevan Sunderland

I'm always looking for new places to travel in search of Caribbean mollusks, and so I'm open to any suggestions. After talking to Carl Sahlberg, who's as crazy about cones as I am about Caribbean gastropods, we decided we wanted to try the Southern Caribbean, but where?

When we did some research and saw all the new and wonderful things that have come to light in the past twenty years, especially the works of Bayer, and Petuch, and Rios from Brazil, we decided on Venezuela. Venezuela is blessed not only with the common species of Caribbean gastropods that are found from Brazil to Bermuda, but it also has many endemic species like *Cypraea mus* Linné, 1758 and *Cypraea donmoorei* Petuch, 1979. One look at any of the scientific papers and popular books will make you want to go buy an airplane ticket.

Venezuela proved, in some ways, to be a difficult place to collect. There's a language barrier that even living in heavily Spanish South Florida didn't help! The coast is desert, with cactus and all the trimmings. Also, the shoreline is mountainous and road access is sometimes lacking. And there's nothing worse than looking down a cliff and trying to hold Carl back, when he swears he sees cones 100 feet below under some intertidal rocks! It's a good idea to try to get charts of any area where you plan to collect. Even if you live far inland, local bookstores carry yachting magazines. These magazines publish addresses where you can get information about every island in the world! With charts and a little preparation, you can cut your hunting time tremendously.

When travelling to Venezuela, you must go to Maquetia Airport or to Maracaibo Aripport. Maquetia is the airport that serves Caracas, which lies fifteen miles inland in a mountain valley. From the airport, you can make travel arrangements anywhere inside the country. The roads are good on the mainland and on Margarita. Even after doing a lot of research on Margarita Island, we were surprised, both

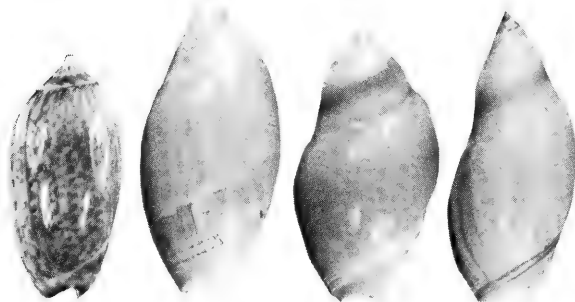
by its size and population. Margarita is definitely not the sleepy fishing village that Utila, Honduras was. It has a population of 300,000 people, which swells to over a million in winter. It's like staying on Miami Beach.

Margarita is forty miles long, five miles wide, and shaped like an hourglass, the midpoint of which is a large mangrove swamp and lagoon. The island is part of a wide continental shelf that, further north, extends out forty miles to take in the Venezuelan islands, Las Roques and La Tortuga.

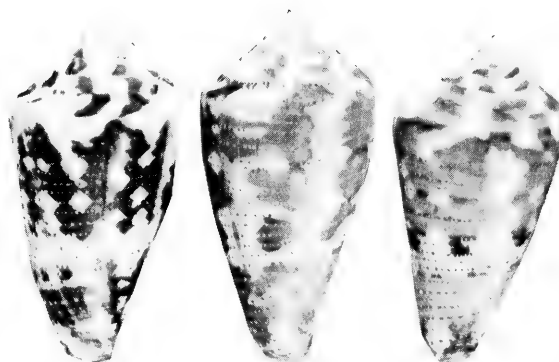
Ok! Some shell collecting! We were based out of Porlamar and collected all over the island. A lot of areas proved to be difficult to collect because of heavy silt from the trade winds that bathe both coasts of the island. The island is also affected by the silty but nutrient-rich water of the Orinoco River in the east. The population center of Porlamar had a heavy silt problem from the destruction of all the shoreline and mangrove areas.

The reefs are far apart and are low-profile gorgonian reefs with some hard corals, mainly boulder corals. All the reef contained scattered patches of hard-pan bottom covered by shallow sand. But not all of the reefs were good for collecting: if the sand was silty, it was nowhere near as good as reefs cleansed by warm, clear waters. The Orinoco River and the constant 15-20 knot breeze made the water very turbulent, and visibility on a good day was only forty feet.

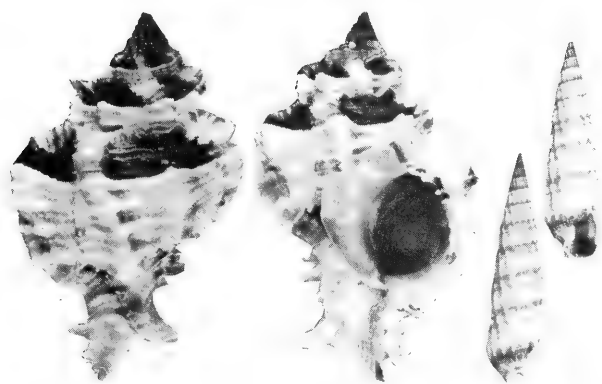
Entering the water in many places, we found crabbed murexes — most can be found very commonly further offshore on the productive turtle grass beds that dominate most of the water around Margarita. It is amazing to see *Murex margaritensis* Abbott, 1958, *Murex pomum* Gmelin, 1791, *Murex brevifrons* Lamarck, 1822 and *Murex chrysotoma* Sowerby, 1834 all on one dive. But when you look closer at the huge numbers of bivalves that coat the bottom, it is easy to understand why the murex are so common. This richness is apparently due to the nutrients from the great rivers that drain the north coast of Venezuela.



OLIVIDAE: *Oliva fulgurator* (Röding, 1798); *Ancilla tankervillei* (Swainson, 1825); *Ancilla glabrata* (Linné, 1758); *Ancilla venezuelana* (Weisbord, 1962).



*Conus cedonulli*, Linné, 1767.

*Murex margaritensis* Abbott, 1958.*Terebra angeli* (Gibson-Smith & Gibson-Smith, 1984)

We did a lot of snorkeling because air tanks were hard to get, and we found the best collecting in the large coves that were sheltered from the ever-present wind that made all dives both interesting and difficult. Beach collecting was very good, and we were able to collect many species by simply walking the shoreline. By carefully checking shallow water along the beaches we found *Persicula interruptolineata* (Muhlfeld, 1816) and *Ancilla tankervillei* (Swainson, 1825), among others. Though these weren't common, it was still a surprise to find even dead specimens in shallow water.

#### Turtle Grass Collecting

This most common habitat, the Turtle Grass Beds, can be found from three to sixty feet, and contains large populations of many species. We collected thirty specimens of *Murex margaritensis*; most were worn and rough but about ten were good enough to keep. *Murex chrysostoma* was also present around the bivalves. There was no real trick to collecting these areas; it was just a matter of snorkeling or SCUBA diving and having a boat follow you in a drift pattern.

In larger-grained sand areas we found *Strombina pumilio* (Reeve, 1859), *Ancilla tankervillei*, *Voluta musica* Linné, 1758 and *Fusinus closter* Philippi, 1850. The importance of the sand quality cannot be overstated. *Conus*, *Voluta* and many other species became much less common as the sand became finer and muddier.

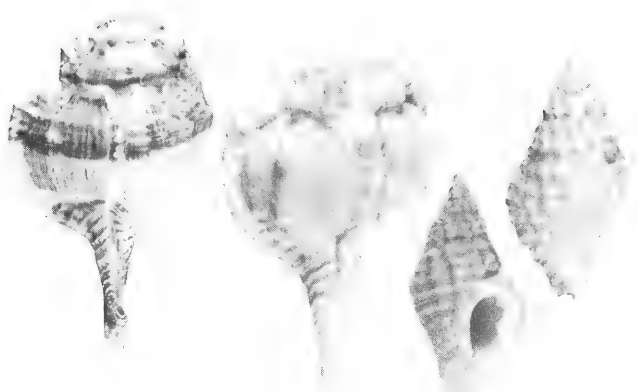
Inshore in muddier patches of bottom, *Terebra angeli* Gibson-Smith & Gibson-Smith, 1894, *Persicula interruptolineata*, other *Persicula* species and many other species of micro-mollusks could be sifted with a fine sieve. Epitoniids were not uncommon, and in one afternoon, six species were collected by dragging a sieve through the grass and muddy sand.

No collecting is easy, and many factors affect what you will find, so keep your eyes open and look at the habitat itself, as well as for specimens. As you will see, habitats can be very specific.

#### Coral Reef Collecting

Coral reef collecting was poor because of rough water and difficult access to SCUBA equipment. The reefs were not in the best shape either, partly because of the physical changes taking place on Margarita to accommodate such a large population. The absence of the Gulf Stream's influence — its reef-promoting clean, clear waters — was also a factor. The reefs were similar to the inshore reefs of the Florida Keys; they were low profile reefs with some boulder corals, but were predominantly made up of gorgonian soft corals.

The reefs we dived ranged in depth from ten to forty feet. To find the deeper water off Margarita, one has to travel well offshore; the Continental Shelf extends almost forty miles. All these things affect the collecting, especially through water quality. The reefs we found most productive were in areas that were influenced by a lot of tidal and wave action; here we found cleaned sand and better water quality. We found *Voluta musica*, *Murex brevifrons*, *Muricopsis gilbertharrisi* Weisbord, 1962 and a host of species common throughout the Caribbean. *Conus cedonulli* Linné, 1767 were not in the open sand areas that are so often associated with this species, but were found

*Murex chrysostoma* (Sowerby, 1834).*Muricopsis gilbertharrisi* Weisbord, 1962.

in sand in and around the coral reef rock and gorgonians. Because of the shallow depth of the sand, the shells were worn on the shoulder, typical of shells that are exposed to wear. The *Voluta musica* appear to grow much faster and the wear was only seen in senile adults.

All in all, it may not sound like collecting is the same in Margarita, but once a collector learns to recognize good bottom, he can just about pick where *Conus* and other popular species will be living.

When reef collecting in this region, we found that most non-burrowing gastropods and bivalves which produce a periostracum had this periostracum covered with fine white to off-white silty sand. This camouflage made looking for color impossible; shape was a better indicator of the presence of shells.

By shining lights under coral heads, we found *Lyropecten nodosus* (Linné, 1758) to be common as shallow as ten feet of water. None were worth keeping, but they were great to eat. Daytime collecting was good for small species of *Vexillum*, and for *Muricopsis gilbertharrisi* and *M. withrowi* Vokes & Houart, 1986. By turning the rocks carefully, we avoided disturbing the animals, and we could remove them from the rocks before they fell further into the reef. It is important to remember, when collecting on a reef, to take one's time, because the shells are working as hard to hide as the collector is working to find them. Being bold enough to explore and to try new techniques pays off in specimens.

\*P.O. Box 130243, Sunrise, FL 33313

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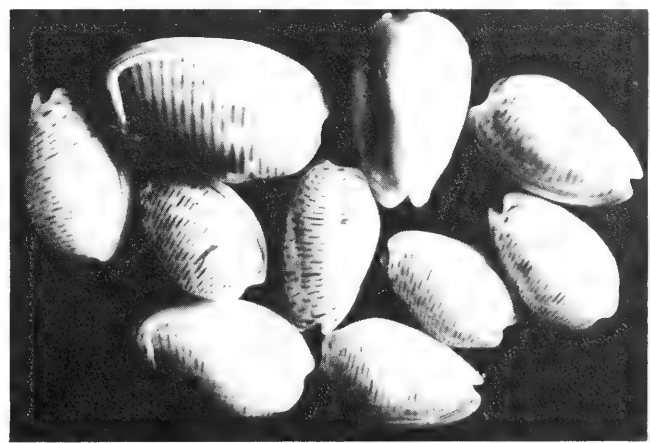


Photo by Kevan Sunderland and John Timmerman.

*Persicula interruptolineata*.



All photos by the author.

Spire of female (L) and male (R) *Conus kukulcan*.*Conus kukulcan* Petuch, 1980

## AN EXAMPLE OF EXTREME SEXUAL DIMORPHISM IN CONES

by Ted Kalafut

In December 1986, with long-time friend and diving partner Tyll Sass, I ventured to Roatan Island, a lush tropical paradise located about 30 miles off the coast of Honduras, Central America. Tyll was seeking adventure — I wanted shells! *Conus kukulcan* was known from the area, and I very much wanted to add a perfect specimen to my collection.

The barrier reef off the north side of the island was very beautiful and healthy, with the water visibility reaching 100 feet. After a couple of unsuccessful hours of rock-turning, I finally discovered a pair of cones lying side by side under a small coral slab in only ten feet of water. It immediately struck me as being rather odd that one was large and red, the other small and green. Although we found numerous solitary shells of each form over the next six weeks, on at least four more occasions we found the two different cones together. The small green shell was obviously *Conus kukulcan* described by Petuch in 1980 and pictured in Abbott & Dance's *Compendium*, but I still could only guess about the identity of the large, colorful cones. I asked a few questions, did some research, and eventually received confirmation from Dr. Petuch that the two shells were, as suspected, male and female of the same species, the male being the green shell in the *Compendium*.

Since I have never seen the gorgeous red form pictured in any publication, and as there does not appear to be any information available to the average collector, I offer the following field notes and observations extracted from at least fourteen weeks of diving and extensive aquaria study in Roatan over the last two years.

All cones are dioecious, meaning they are either male or female. As in most of the rest of the Animal Kingdom, one or the other of the sexes displays some sort of differentiating physical characteristic. This **sexual dimorphism**, as it is called, is quite pronounced in this species.

In *Conus kukulcan*, the larger, more colorful shell is the female. I have observed the female laying eggs in a cramped, dark, rocky recess in 45 feet of water. She is actually 30-35mm in length, rather inflated, and lightweight for her size. Normally very brightly colored, from brilliant red to orange, or purple, to blue; she can also be colored olive-drab, mimicking the male.

Although the male is usually small (15-22mm), thicker shelled, and greenish in color, he will, in rare cases, grow to a more impressive size (28mm plus) and will occasionally exhibit an orange or red color pattern. After studying a healthy series of both sexes, one would find it difficult to mistake a male for a female.

The animal in both sexes is bright red with minute white spots grouped closely together. The spires of both sexes also exhibit identical characteristics, with the "squiggles" or fine zig-zag lines being a sure and constant indicator of the species. The protoconch is near-

32mm female *Conus kukulcan* disgorging partly digested polychaete worm. Moments earlier the entire worm was inside the cone.

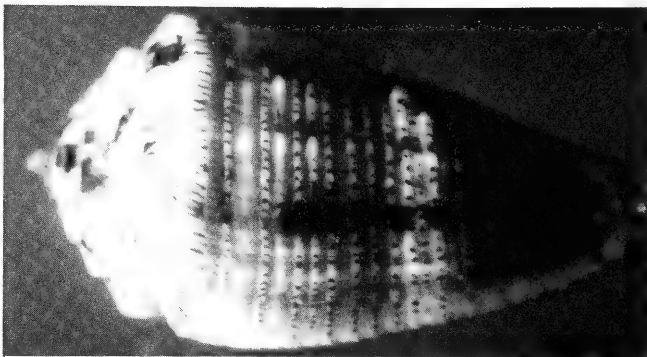
ly always pink, although in a rare orange specimen the nuclear whorl will be orange also.

I have found the cones feeding upon, or later disgorging, (see photo) polychaete worms, obviously their main diet. They can be real pigs too: many seem to prefer worms at least twice their own body length.

The very desirable *C. kukulcan* seems to have a range restricted to the Bay Islands, off the north coast of Honduras. It is found in 5-50 feet of water and is uncommon to rare in its range.

Tyll is presently enjoying the adventure of Roatan eight months out of the year, and I am back in Florida enjoying the beautiful shells I have collected there, with the fascinating *C. kukulcan* taking the spotlight.

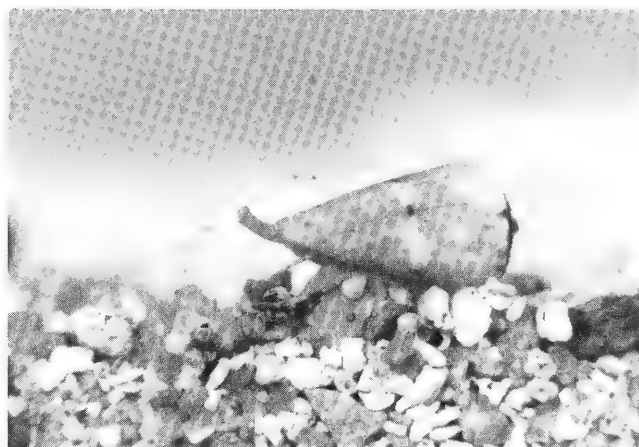
\* 11630 Indian Rocks Road #102, Largo, FL 34633

Male *Conus kukulcan*, 21mm.Female *Conus kukulcan*, 33.6mm.



Photos by the author

*Conus kalafuti* da Motta, 1987. 13-14mm.



## ANOTHER NEW CONE FROM THE BAY ISLANDS OF HONDURAS

by Ted Kalafut

The December 1987 issue of *American Conchologist* reported three recently named cones from the Bay Islands off the north coast of Honduras. Fellow collectors from south Florida had turned up three exciting new species off Utila Island: *Conus harlandi*, *C. sunderlandi*, and *C. eversoni*. At the very same time that they were diving Utila, I was diving off Roatan Island, less than 25 miles to the northeast. Coincidentally, I had discovered a previously undescribed cone myself. After I had worked with A. J. da Motta of Hong Kong, for several months, he officially described *Conus kalafuti*.

A fifth cone, also endemic to Roatan, was also named in 1987. *C. magnottei* Petuch was named in honor of Gary Magnotte who, with another mutual friend, Mike Cahill, had collected in Roatan years before and had sparked my interest in the island. It is very interesting that five friends all have cone namesakes, all described in the same year, and all from the same region. I don't think that this will happen again for a long time.

*Conus kalafuti* is a rather small cone, only 11-14 mm, with straight sides, a low spire with a white, nipple-like protoconch, and a highly polished, smooth body whorl. Although typically yellow or orange, the shell is rarely olive, brown or peach, or may exhibit zigzag markings over the entire body whorl. Secondary color characteristics are

the normally present white mid-body band which is interrupted by black blotches, and the white, smooth shoulder which has irregularly-spaced black slash marks extending two-thirds of the way up towards the protoconch. The periostracum is very thin and semi-transparent, allowing the shell's underlying color to show through quite vividly.

The living animal's foot and siphon are red with microscopic white spots and indistinct mottling, while the eyestalk is white with a tiny black eye.

The unusual thing about *C. kalafuti* is that it is found living on top of rocks, unlike its other cone neighbors which shun daylight. It always lives embedded in or associated with a carpet of short, stiff algae on top of these rock slabs, where it ferrets out the small polychaete worms upon which it feeds. This habitat can make spotting *C. kalafuti* rather difficult, despite its bright coloration. Often there is a thin layer of sand covering the habitat, stirred up by the heavy seas which frequent the north side of the island where they are found.

*Conus kalafuti* is collected in 40-50 feet of water in isolated pockets, appears to be rare in its restricted range, and is endemic to Roatan Island.

## MY CONE'S BIGGER THAN YOUR CONE!

by Gene Everson

Most shell collectors are familiar with Wagner and Abbott's *Standard Catalog of Shells* and its section on world record sized shells. But few collectors east of Disneyland are familiar with the *Lost Operculum Club List of Champions*.

The *Lost Operculum Club List of Champions* is a project of the Conchological Club of Southern California, and it lists record size shells from the Alaskan shores of the Bering Sea to southern Chile. The Conchological Club of Southern California began in 1902, and now has a meeting room in the Los Angeles County Museum. It became common practice for members to bring shells to the meetings for identification and to show other members. When large specimens were shown, they started measuring them and listing the largest shell of each species, and challenged other members to bring a larger one. Quite often when a larger shell was brought in, the proud owner would say, "It's lost its operculum, but it's a new record." Thus the name. Now, more than 35 years later, the list totals over 1,300 species.

The *Lost Operculum Club List* originally included any shell species owned by a member, regardless of whether it was a fresh water, land or marine species, and regardless of where it came from. As problems arose concerning identification, and verification of collect-

ing localities, the list was limited to marine species from the eastern Pacific shores and those off-shore islands having the same species. Later, in the interest of science, the list was opened to collectors anywhere and to museums and associations.

The *Lost Operculum Club List of Champions* has no minimum size limits, while the *Standard Catalog*, due to the volume of work involved in a worldwide list, limits the size of species to one inch, or 25.4mm, and greater. The price for the 1987 *Lost Operculum Club List* (last update was June, 1987) is \$3.50 plus \$.80 postage, for the total of \$4.30. It may be ordered by writing to the author:

Bertram C. Draper  
8511 Blieriot Ave.  
Los Angeles, CA 90045

or B. C. Draper  
c/o Los Angeles County Museum  
of Natural History  
900 Exposition Blvd.  
Los Angeles, CA 90007

The *Standard Catalog's* last publication of a record list was the 1985 Supplement #3. It can be purchased separately for \$6.00. Bob Wagner keeps new record inputs on a computer file and, while the last list contained 1,300 species, the next one will contain 2,100 or more. Supplement #4 is expected to be published in early 1989.





Photo by Olive Peel

A young cowherd, white face indicating that he has reached puberty, and medicine bottles to ward off evil spirits.



Photo by Olive Peel

Mother and child.

## A SHELLING TRIP TO THE WILD COAST OF SOUTHERN AFRICA

by Olive Peel

*"But I don't want to go among mad people," Alice remarked. "Oh, you can't help that," said the Cat, "we're all mad here. I'm mad, you're mad, we're all mad." "How do you know I'm mad?" said Alice. "You must be," said the Cat, "or you wouldn't be here."*

The television announcer told us that, for the next decade, we'd have to get used to the bad weather we'd been experiencing over the past six months in South Africa — bad news in itself — but we didn't let it stop our shelling trip to Mbotyi, a Black Republic in the Transkei — the trip had been delayed long enough!

So five of us — Eunice and Peter Coetzee, Eugene de Wet, Markus Lussi and I — piled into a fully packed land rover, with a fully packed trailer and roof carrier, and for the next 7 hours we bumped, rocked, rolled and slid our way to the wild coast. Our drums of drinking water slithered all over the land rover and, together with our odds and ends, they hemmed Peter in so that he couldn't move — actually, his good luck!

Eventually we arrived at a town in the middle of nowhere which had a petrol bowser, but we had to wait for the driver of a small truck blocking the pump to finish his shopping! Next to our land rover, sitting on his haunches on the ground, knees touching chin, was an old, old man. The "Kehla" (old man) poured what looked like water into an aluminum bowl on the ground in front of him, dropped what looked like white sugar into it, stirred it round and round, taking all the time

in the world, then picked up the bowl with both hands and drank the exotic mixture.

The next minute, panic reigned! Children were running in all directions, leaping every obstacle in their paths, including goats and sheep! Tea break was over and the local headmaster, immaculately dressed in satin waistcoat, tie, white shirt and black trousers, Afro hairstyle and beard entered the arena slashing in all directions with a "sjambok" or long whip. Never before have I encountered so many long, skinny, jumping legs!

On our way again, the last 23 kilometers took us a full hour of maneuvering potholes. A child cyclist and a bareback rider on a horse leisurely passed us. I'd ride a motorcycle next time! If there ever was a next time!

Through a magnificent tropical forest, Eugene managing very well the slippery, steep dirt roads, fallen trees and boulders. No one was brave enough to look into the gorge only a few centimeters from our wheels.

At long last, we arrived at our cottage, and the wonderful sight of the sea. We slogged the last ten meters on foot through long muddy grass, just to enable the land rover to make it to the house.

The last hours of the afternoon, I was all for sleeping, but the adventurous ones decided to explore the road to the shelling ground, "Strombus Bay," where Eunice and I planned to spend hours and hours sitting under our umbrella with iced drinks, while the three guys did the shelling and brought us back the spoils. A fantasy not to be —



Photo by Olive Peel

### A Transkeian fisherman.

the land rover came to grief in a muddy hole, and it took all eleven of the local village soccer team to get it on *terra firma* once more.

The next day the guys went on a treacherous walk along a goat trail at the side of a hill to look at another beach. Eunice and I, being ladies of ample proportions and with our wits about us, decided that the flat beach with cool stream was more our forte. I managed to make friends with a woman who could speak English, and told her I was looking for shells. She called to a friend across the beach, and the next minute a large bowl full of shells was dumped at my feet, the easiest shelling I have ever done. And so I bought from this woman *Patella granularis*, *concolor*, *miniata sanguinans*, *obtecta*, *cochlear*, *longicosta*; *Helcion pectunculus*, *H. pruinosis*, *Thais capensis*, *Turbo sarmaticus*; *Cellana capensis*, *Burnupena lagenaria*. She promised to bring more the next day.

In the meantime, while Eunice and I were enjoying our cool pad-dle, Peter had become separated from Marcus and Eugene, and was trying desperately to negotiate a steep hill. He wanted to give up, but decided he couldn't go back, didn't want to go forward, but there was really no question of going sideways. He lit a cigarette and pondered his beloved Eunice's future without him; thoughts of the unknown drove him on, and he found a much easier path down the other side. And his effort was worthwhile, because he brought back live-taken *Charonia lampas pustulata*, *Gemmifera australis*, *Conus tinianus* which is never easy to find, and all sorts of other odds and ends!

Eugene and Marcus tried to negotiate the same hill, but fared much worse . . . What we endure for the sake of a hobby! Meanwhile, all afternoon, the villagers arrived at our door with crayfish kicking like crazy, *Patella* and *Dinoplax gigas* galore.

We did have one more walk down to the beach before retreating to the house for good. A herd of cows came stampeding across the stream, out of control, and Eunice made a beeline for me. As she crouched behind me, I wondered what made her think I wasn't scared too! So much for friendship! Fortunately the little six-year-old herder knew his job, rounded them up and headed them off in the opposite direction.

We enjoyed sitting at home watching the passing parade — the little dirt road ran in front of our cottage — herds of cattle passing, horsemen riding past to the local store, goats coming into the yard to peer at us, an old man who wanted a drink of water, but was given grapes and tea instead. The people here live mostly off the sea and by keeping cattle, and are very friendly. Within minutes of our arrival, everyone knew we were there, what we looked like, where we came from, what we were doing there, and that we got stuck in the mud. The only thing they did not know about us was why we threw the meat away and kept the empty shells! But they were always delighted to be invited back later to collect the flesh from the shells, already cooked!



Photo by Markus Lussi

### Eugene helping Olive into the land rover.

Peter, sorting his finds, showed me half a bivalve, "What do you make of this?" I studied it and said it looked like a freak *Macra glabrata*. When Markus came in, he studied it and decided it was a jingle shell, but we voted to let our scientific observer have a look at it when we arrived back home. In walked Eunice, not herself a shell collector, but merely a supporter (and, to my way of thinking, an interferer!), and said in an authoritative voice that every shell collector in the country could hear, "What are you doing with this plastic rose petal?"

So I suppose it serves her jolly well right that she got a broken toe while trying to get into the land rover on the way home, but then, who am I to talk — I arrived home with legs like raw liver — somewhere along the way I touched something I ought not have, and contracted dermatitis.

## SHELL MUSEUM IS CLOSER TO REALITY

COA members at the 1988 Convention in Ft. Myers learned that the proposed Shell Museum on nearby Sanibel Island is two giant steps closer to reality.

The search for a suitable building site has culminated in a letter of intent from a prominent Sanibel family to donate eight mid-island acres. With Sanibel land prices now soaring, this gift will put the Museum project a fiscal light year ahead.

The second forward leap occurred during the Convention when the City of Sanibel's planning commission agreed that the Museum, as currently proposed, does indeed qualify as an educational institution. Part of the property to be donated is "lowlands wetlands," and on Sanibel only educational institutions may be built in such zones.

At the Convention presentation on the \$1,250,000 Museum project, Museum Board member Bill Hallstead and Board Chairman Betty Doan Johnson discussed the Museum's status and plans for the future, reporting 454 supporting members to date. "We are overwhelmed by the generosity of our friends," Chairman Johnson told *American Conchologist* recently. "A Sanibel attorney represents us at no charge. A Captiva architect has waived all fees. Two Board members have contributed an \$18,000 computer system."

Dr. R. Tucker Abbott, a project advisor, completed the presentation with a discussion of various opportunities for disposition of shell collections, including contributions of collections to institutions such as the Shell Museum.

Appropriately, Dr. Fred Thompson, curator of mollusks at the Florida State Museum in Gainesville, had just presented the well-known Louise Perry Collection of Sanibel Shells to the Shell Museum Board, one of several major collections already acquired by the project.

The Museum intends to serve shell interests worldwide, including sea, land and fossil shells, and welcomes to membership everyone interested in shells and shelling. For information, and to be included in the project's quarterly Newsletter mailing, write: The Shell Museum & Research Foundation, Inc., Box 1580, Sanibel Island, FL 33957.

## CONGRATULATIONS, ALL!



At the Central Florida Shell Show in Orlando, Doris Underwood shows off her second 1988 COA Trophy for her "Margi-nellidae" exhibit. Doris also won a COA Trophy at St. Petersburg for her "Xenophoridae."



Photo by Allan Walker

Linda and Jim Brunner with their pair of trophies for their exhibit, "The Shells of Linne." The exhibit won both the COA Trophy and the Maggi Wheldon Memorial Trophy, presented by the Jacksonville Shell Club.



COA Secretary Dave Green and his wife Lucille, shared a COA Trophy at the 1988 Naples Shell Show for their "Pectinidae: The Living Scallop."



At the 1988 Salon International du Coquillage in Lutry, Switzerland, Mr. Pierre Bert won the COA Trophy for his two case exhibit, "Variations sur les Pectinidae."



Travis Payne, winner of the COA Trophy at the Georgia Shell Show for his worldwide exhibit of rare shells, "Phylum Mollusca."



Nancy Gilfillan at the Long Island Shell Show, displaying the COA Trophy she won for her exhibit, Beauty of Form, Sculpture, Color and Design."



## IN SEARCH OF PERSICULA CALCULUS

by Robert Lipe

As we arrived on this beautiful island, I thought to myself, "Would I or wouldn't I find the marginella that I had come so far to find?" I had waited many years for this. In fact I had planned to come in 1983, just before the Marines took over the island, but was advised to do otherwise, and now, thanks to my wife, Betty, who made all the arrangements, here we were.

The story really started in 1967 when a man named Royce Hubert sailed across the Atlantic from Africa to Brazil and then headed north and stopped at a little island named Grenada, the Spice Island. He dredged some small marginellas which he sent to me to identify. They were about 8-10mm in size and I wasn't quite sure what they were. They turned out to be *Persicula calculus* Redfield, 1870, which I hadn't seen before.

Royce was in Grenada for a short time in 1977 and sent me two dozen of them, but when he left, that was it — I never saw this species again. Twenty years later I met him for the first time at a COA convention in St. Louis, and we discussed the exact location where he had found the *P. calculus*. Now, with this information in hand, I couldn't wait to get there.

Before we left, I made a dredge to fit, partly disassembled, in my suitcase. Would they let me take it into the country? Would they take it away from me? Would I find a boat to pull it? So many questions ran through my mind. But we got it there with no trouble at all. It was dark when we settled in the motel, so I reassembled my dredge and hand scoop in preparation for the next day.

In the morning we went by bus into town for sightseeing and converting our money. The town is mostly uphill and downhill. When we returned to the harbor where the bus had let us out, I found that there are water taxis that ferry people across the harbor as well as back to our beach. I became more confident that maybe I could put my dredge to use. After I briefly explained what I wanted to one of the boat owners, he agreed to try something that he had never done before. Would the dredge work? I worried about that all night. I had built it from memory as near as possible to one that Dan Steger had made years ago. The one difference was, mine was made of aluminum.

The next day, the boat owner picked us up on our beach. We cruised along the cliffs toward the home of the *Persicula*, and dropped the dredge about a mile before we arrived at the exact location. It wasn't working right, so I got in the water with my mask and snorkel and let the boat tow me with the dredge. I had 150 feet of rope, so we used 75 feet for the dredge and 75 feet for me. With Betty on one rope and the boat owner's son on the other, we did some successful dredging in 15-35 feet.

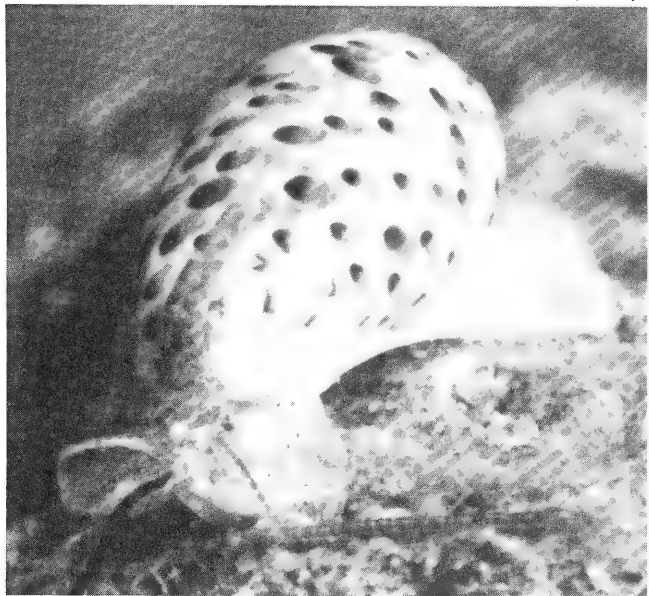
The dredge was too light and I had to slow the boat down quite a bit to keep it on the bottom. We worked out some hand signals to control the speed as well as the length of the rope to be let out. At times I had to carry the dredge over the rough spots, while the boat towed me, and then drop it in the sand when we reached a clear area again. There were also coral reefs lying just below the cliffs that we had to avoid.

On land, a few small houses sat on the steep slopes, partly hidden by the trees. What a view the occupants must have. Farther up the coast, large cactus were growing in the side of the rocky cliff, the mountain was covered with thick forest, and there was no sign of human life. What a beautiful island! We pulled the dredge up several times and dumped it into a bucket. Still no *calculus*.

Up the coast we continued and picked up quite a few other small shells. We found live tusk shells and another species of marginella that I didn't know. Finally we dredged a dead *calculus*! That kept us going. Several more tries with no luck, and I was about ready to give up.

I got in the boat ready to call it quits. I was disappointed, and Betty knew this as she continued to search through the dredged material. After long minutes, she reached out her arm and dropped a shell into my hand which really made my day! A live *calculus*, and

Photo by Bob Lipe



it had dark markings! Royce Hubert's *calculus* were light colored. Could this be a dark form? Then she found another one. I took my hand dredge and, with renewed energy, I jumped overboard and went closer to shore in about 8 to 12 feet. I screened a third one, and took some gravel back to the boat for Betty and the boy to go through, and they found two more. One was light, like the ones that Royce had sent me. By then, it was late in the day, and we called it quits.

Though tired when we got back, I forced myself to get some water for my aquarium. As soon as I dropped the shells in, they started crawling in all directions as I shot picture after picture. The marginellas sure looked pretty through my camera lens. Also fascinating was a live *Olivella nivea* which kept trying to get out of the way of three *Natica canrena* by flapping its mantle and swimming off the bottom.

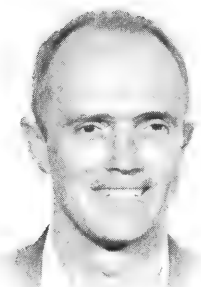
The next day, as we shopped in town for the many spices for which the island is famous, I set up another trip on the following day. In the same area, in 8 to 25 feet of water, we found about a dozen more *calculus*. Then, a day later, while Betty shopped in town with friends, I hired another boat, and with SCUBA we returned to the same area in somewhat deeper water. Here I screened some gravel and put it in a pillowcase and brought it back with me to lay out to dry. We looked through it and found another dozen *calculus*, as well as some dark *Olivella*.

It was a wonderful and successful trip. And, by the way, my pictures turned out fine. Maybe someday they will appear in a marginella book.





## WILLIAM DANIEL BLEDSOE (1920 - 1987)



Our former COA President, William D. Bledsoe, known to most as Bill, died suddenly on December 1, 1987, at the age of 67. He was put to rest in the family grave in Terre Haute, Indiana, in the city where he was born on October 15, 1920.

Bill was renowned for his collection of rare and choice specimens of marine shells, a hobby he did not pursue until he became "shell-shocked" on Sanibel Island in 1962. Over the years he acquired an unusual selection of shells from the leading shell dealers of the world. By 1971, his collection of *Pleurotomaria* Slit Shells, exotic cones and cowries and unique *Latiaxis* had earned him many major trophies for the "Best of Show" in many categories.

Bill Bledsoe received his Bachelor of Arts degree, with a major in music, at the University of California at Los Angeles in August, 1949. In 1942, he had joined the U.S. Army Medical Training Battalion and later served at the General Hospital at Longview, Texas, and in England in 1943 and 1944.

In 1958 and 1959 he toured Europe in his new Mercedes Benz 220 S convertible which he kept for the rest of his life. He moved to California in 1960 and became very proficient in photography and a collector of Leica cameras. He acquired and was refurbishing a home in Brentwood — a suburb of

Los Angeles — for the main purpose of housing his extensive collection. For several years, his outstanding collection of *Pleurotomaria* Slit Shells was on exhibit at the Los Angeles County Museum of Natural History.

Although Bill was a very quiet and unassuming gentleman, he was active in his membership in the Conchologists of America, being one of its early Presidents, and many times organizing and contributing to the auctions that helped raise funds for students. He was also active in the El-Dorado Color Pictorialists of Los Angeles and the Le Cercle Concours d'Elegance, an organization "dedicated to the esthetics of the automobile." Square dancing was one of his great activities.

The Bledsoe collection of shells was donated to the U.S. National Museum at the Smithsonian Institution in Washington, D.C. where it will be on display, in part, for the public to see. Over 250 species, mostly rare cowries, cones and volutes, were new to our national collection. (Irene Court, Los Angeles, and R. T. Abbott, Melbourne, Florida.)

### EXCHANGING SHELLS . . . JOY OR HORROR?

There is no more amiable way of sharing your extra shells with friends or building up your favorite group of mollusks than by exchanging. It may take patience, time and a little diplomacy to negotiate an exchange by mail, but when you finally put in place that lovely rare cowry new to your collection, you will wonder why you kept hoarding that duplicate cone so long.

Exchanging can make your collection grow in beauty and completeness. Even dealers exchange among themselves. But exchanges don't always run smoothly, particularly if you exchange with a stranger. Recently, some of our members from Florida, South Carolina and New York have been tricked into sending valuable shells in advance, only to receive in return utter trash or no shells at all. Glib of tongue, poetic with pen, and armed with false recommendations, a gentleman from the northeast has made exchanging shells a horror for several advanced shell collectors. When in doubt, contact a shell club editor or a reputable shell dealer. If there's anything worse than a bad apple in the barrel, it's a "con artist" in the exchange package! Meanwhile, happy exchanging and fruitful collecting! (R. Tucker Abbott)

### BOOK NOTES

by Walter Sage

Four important publications have recently become available:

- 1) A book on *Nautilus* co-authored by Neil Landman, American Museum of Natural History, containing chapters written by many specialists on various aspects of the biology of the "living fossil."
- 2) The long-awaited review, by Ponder and Vokes, Supplement 8 of the *Records of the Australian Museum*, of the Indo-Pacific species of the muricid genera *Murex* s.s. and its new subgenus *Promurex*, and *Haustellum*, in which ten new species and subspecies are described and all valid named taxa are discussed and illustrated.
- 3) The third volume of the planned 10 volume review of the chitons by Kaas and Van Belle which covers additions to the first two volumes

and continues discussion of the family Ischnochitonidae, subfamilies Chaetopleurinae and part of Ischnochitoninae.

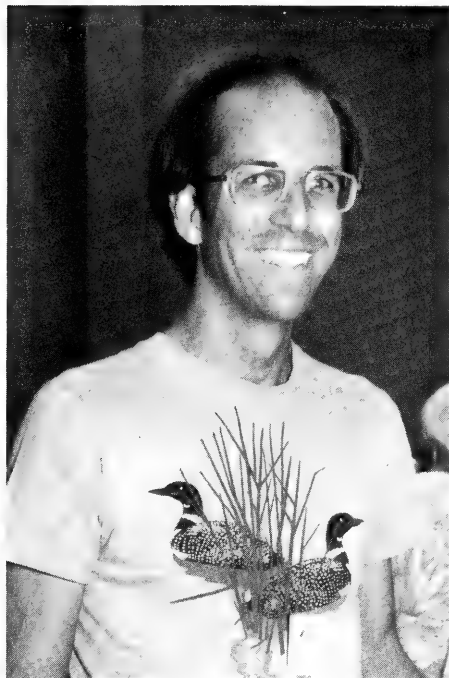
- 4) A fascinating book by Hagendohrn *et al* on the use of *Cypraea moneta* and *C. annulus* as monetary items in West African trade.

### BOARDTALK

From COA President ALAN GETTLEMAN: I am happy to announce the appointment of Glen Deuel as COA Parliamentarian, a new position under the constitution. Glen brings previous experience as a parliamentarian, and we welcome this valued COA member to a new job for the organization. Vice-President Peggy Williams, in addition to her other duties, is the COA Liaison for Clubs and the Club Representative Program. At the "Sweet Sixteen" Convention, representatives from most of the Clubs met and exchanged ideas. More on this in later issues.

From COA Treasurer WALTER SAGE: It was good to see so many of you at the fun-filled Ft. Myers Convention. We are "down" to less than 70 memberships that remain unpaid for 1988, and would like to reduce this number to less than 50. If you know someone who has not yet renewed his 1988 COA membership, please give him a gentle reminder to do so.

Also, please note the 1989 dues renewal notice that accompanies this issue — we would appreciate payment as soon as possible to facilitate planning for 1989 and to lessen the number of reminders that need to be mailed. If you are one of the members who has paid ahead for 1989, we ask you please NOT to pay a second time for next year. We remind all current members that the COA membership year is January 1 to December 31, and that anyone who pays for 1988 will receive all four issues of *American Conchologist* for 1988; one needs to pay dues again now to ensure prompt receipt of 1989 issues. Please contact Membership Chairman Bobbie Houchin if you did not receive an issue or have problems in the future with receipt of *American Conchologist*.



John Timmerman, collector . . . artist . . . at COA.

Photo by Pam Scott

## MEET JOHN TIMMERMAN

by Mary Ruth Foglino

If you've ever wondered about the talented person responsible for so many of the exquisite pen-and-ink and watercolor shell drawings that adorn the *American Conchologist*, often signed with a fish logo, let me introduce you to John R. Timmerman, a member of the COA for four years, and art director of this publication for nearly two years.

John is a tall, slender, handsome young man with a calm and self-assured manner. His clear-gazed serenity camouflages the tremendous enthusiasm that seethes within him, excitement about so many interests that one wonders how one person can encompass so wide a range.

Born in Charleston, West Virginia, John has lived, with his family, in Belle Mead, New Jersey, midway between New York and Philadelphia, for the past eighteen years. In 1978 he graduated from Franklin Pierce College with a biology major and a minor in Fine Arts. His course work since then has centered on art, but his true vocation, his wood carving skill, is largely self-taught. He has been carving since he received his first penknife as a young boy.

Although John works in many media, including pen-and-ink, watercolor, wood sculpture, wood relief, ivory sculpture and Japanese brush-and-ink, he now focuses commercially on large wood-relief panels, mantels, doors and facings, usually incorporating nature motifs. Combining the cabinetry skills learned from his father with his own carving talents, experimenting with traditional and modern tools, and incorporating woodburning techniques to highlight details, John has been producing large scaled architectural masterpieces with natural wood finishes and intricate detailing. In addition to his commissioned works, John has had several one-man and group shows. His in-the-round nature sculptures carved from whole black walnut or cherry logs are favorites.

John's shells are but one facet of his natural history collections. He began as a boy gathering whelk and cockle fragments during family vacations at Myrtle Beach, and he is still an inveterate beach-comber. Of marine shells, his self-collected *Busycon* specimens are still his favorites. He will purchase individual shells for their beauty, avoiding the "legend shells." He has volutes, Hawaiian Tiger Cowries, West Mexican murex, cones, moon snails, and fresh water Naiads, mostly self-collected.

This shell collection must share space with John's other nature specimens. Whole skeletons, bones and skulls are fascinating to John and he acquires any he can get, including those of fish, birds, mammals and reptiles. He also has a collection of big teeth and horns. A set of elephant tusks, weighing 65 pounds apiece and mounted in carved snakes, adorns his home, as does a replica of a Mountain Gorilla. John grows many varieties of tropical plants, and enjoys gardening, especially with perennials. In his "spare time" he is a devoted swimmer and bicyclist.

Now you have met this multi-talented young man. Our *American Conchologist* is a fortunate recipient of his versatility and generosity. In his soft-spoken manner, he offered to help out with the publication in any way he could, and with his quiet enthusiasm he has continued dependably to do so.

## WHAT'S NEW IN MOLLUSCAN RESEARCH?

by R. Tucker Abbott

### Strange Foods of Deepsea Limpets

Smelly whale skulls, fish bones, shark egg-cases and the tubes of polychaete worms are the food of caudofoveate deepsea limpets. In a continuing flurry of research papers by Drs. B. A. Marshall of New Zealand and G. Haszprunar of Austria, the classification of primitive gastropods is being completely revised.

The genus *Osteopelta* and the species *mirabilis* were created for this New Zealand limpet coming from a depth of 1,100 meters. Fish-bone-eaters of *Cocculinella* have also been minutely examined. So rare is the *O. mirabilis* that the parsimonious British Museum would lend only one specimen (out of nine originally found) to the Austrian researcher.

Exquisite drawings and photographs of microscopic sections of the blind limpets are given in Haszprunar's February 1988 article in the *British Journal of Molluscan Studies*.

## OH! HOW SWEET IT IS!

by Mili Backus

... to sit back and reflect on the super success of COA's "Sweet Sixteen" Convention in the beautiful City of Palms. From July 11-16, Fort Myers was the SHELL CAPITAL OF THE WORLD, and the Southwest Florida Conchologist Society and friends made it so!

Registration Chairman **Vivienne Smith** reported a total of 369 Convention registrants! Without Vivienne and her committee, stuffing convention packets, making changes, answering questions, the convention wouldn't have worked. Nearly 100 members checked in at early registration on Sunday, greeted by Convention Co-Chairmen **Gene Herbert** and **Al Bridell**, and other COA officers.

Monday, July 11 marked the official opening of the Convention. Both the hotel registration desk and the COA registration tables were swamped with eager COA check-ins.

Welcome speeches by Host Club SWFCS President **Gene Herbert** and COA President **Don Young** and others were gracious and brief. Afternoon programs began with irresistible zest in "Australia 1987" by vivacious **Gloria Scarboro**, followed by a scholarly "Preliminary Survey of the Mollusc Fauna of Newfoundland" by **Ronald Noseworthy**. As a young linguistics student, Ron received the wrong book from the library stacks — R. Tucker Abbott's *American Seashells* — and has been shellstruck ever since.

The Welcome-Get Acquainted Party, put together by **Georgette LaForet**, began at 6 PM in the grand Sheraton Ballroom. Wine, friendliness and conversation flowed, spiced by the beautiful array of appetizers.



Cecelia Abbott and "Helix."

Photo by B. J. Larson

Club Pin, T-Shirt and Membership Exchanges from 8:30 to 9 AM officially started each day, followed by announcements and the awarding of the 65 odd door prizes **Doris Platt** had assembled. Then came the programs. On Tuesday, **Al Chadwick** took us "Collecting Shells in the British Isles," **Tucker Abbott** spoke on "The Virtues of Land Shells," **Bob Lipe** presented "Habitat to Aquarium," in the morning. **Emily Vokes** graced the afternoon with an illustrated talk on, guess what, "The Murex Family," and **Alice Anders**, **Mary McHarg** and **Georgette LaForet**, SWFSC members, presented an interesting and lively exhibit of mollusks and sea creatures in salt water aquariums.

The much-anticipated Live Shelling Field Trip to Bokeelia, and dinner at the Crab Shack, was stormed on, but undaunted shellers shelled on. Praises are in order for the **Dworaks**, who coped with shepherding 232 COAers around Charlotte Harbor, to dinner, and to their warehouse and woodworking shop in Cape Coral to clean shells.

Wednesday's engrossing programs filled the day. **Wayne Harland's** "Galapagos Island Shelling," and **Richard Goldberg's** "Land Shells



Photo by Pam Scott

Drs. Harold and Emily Vokes.

Through the Lens," were followed by a panel discussion by **Tucker Abbott**, **Betts Doan Johnson** and **William Hallstead** on the Sanibel Museum and future disposition of shell collections. **Kevan Sunderland** spoke on "Mollusca of Isla de Margarita, Venezuela," and **Dick Forbush** entertained us with "Shelling in Polynesia." Two of our overseas visitors gave talks as well. **James Ernest** promoted shelling visits to the islands and beaches of his country with "Panama Shelling."



Photo by Pam Scott

Margaret Taylor and Anne Marrou from San Antonio, Texas admiring some of the shells in the silent auction.

**Professor Eliezar Rios** flew 12 hours from his home in Rio Grande, S. Brazil, to present "Shells from Rio Grande's Deep Waters."

Other COA members from exotic corners of the world include **Aurora Richards** from New Guinea whose shelling adventures would make an exciting movie, **Marcus** and **José Coltro** from Sao Paulo, Brazil, **Patrice** and **Martine Bou** from Martinique, and **Joseph** and **Millie Lieida** from Nassau. **Bunnie** and **George Cook** flew from Honolulu to issue glowing invitations to the Hawaiian Malacological Society's November 11-13 Shell Show, Auction and Dealer's Bourse.

The 1988 Business Meeting, conducted by President **Don Young**, was well attended, short and "sweetened" by door prizes. Secretary **Mary Ellen Akers** read the minutes, Treasurer **Walter Sage** reported on the solvent financial status of COA, and the new Constitution and By-Laws were approved by vote. Members were urged to read these important documents to have a better knowledge of the workings of COA. Grant Award Committee Chairmen **Anne Joffe** announced this year's awards: **Gary Coovert** — \$500; **Rüdiger Bieler** — \$800; **Alan Kabat** — \$550. Membership Chairman **Bobbie Houchin** reported

a total of 911 memberships and 1100 members.

Nominating Committee Chairman **Richard Forbush** presented the 1988-89 slate of officers: President — **Alan Gettleman**; Vice President — **Peggy Williams**; Treasurer — **Walter Sage**; Secretary — **Dave Green**; Directors — **Herb Young** and **June Huie**. They were unanimously elected.

The long awaited Annual COA Auction on Wednesday evening was an overwhelming success, due to the hard work of Auctioneer **Marty Gill** and his assistant, **Sol Weis**, and the Auction Committee, **Edie and Chip Chippeaux**, **Vi Hertweck**, and **Margaret Thorsen**. We thank the following 109 donors for the over 500 items that they contributed to the Auction, Silent Auctions and door prizes:

Patrice Bou, Nell's Shells, James Ernest, Alta Van Landingham, Donald Dan, H. L. Strange, World Wide Sea Shells, George Weitlauf, L. G. Hodder, A. L. Jones, Mary and Al Bridell, Richard Kurz, Phil Schneider, Don Pisor, Mique's Mollusks, Don Young, Virginia and Dorance Lee, London Associates Shells, Sanibel Seashell Industries, Renate and Ed Skinner, Stephen Rosenthal, Zida and Bill Kibler, Walter Sage, Helen Racz Lorenz, Marco Island Shell Club, Fran Hutchings Thorpe, Josy and Ben Wiener, Yvonne Bequet, Dr. Emily Vokes, Mili Backus, Olive Peel, LaVerne and Albert Niere, Stonecraft, Doris Platt, Carfel Shell Museum, MacIntosh Book Shop, Pretty Penny Press, Of Sea and Shore, Roger Tory Peterson Institute, Phil Clover, Jean Cate, Middle American Res. Inst., Sea Challengers, Pineapple Press, Bonnie Holiman, Sharon Shells, Lynn Nathanson, The Shell Factory, Doris and Bob Underwood.

Ruby and William Ruby Barry, Twila Bratcher, Gertrude Moller, Peggy Williams, Jo and Rusty Bennett, Janet and William Paddison, Edith Mugridge, John Timmerman, Capt. Tom Clifford, Cate and Huck Liebermann, Vivienne Smith, Myrna and Jack Golden, Rose Provost, Naturegraph, Charlotte Lloyd, Gene Herbert, Sue Stephens, Muriel and Ernest Jones, Shells by Emily, Bev and Al Deynzer, Jackie and Ed Hanley, Edie and Chip Chippeaux, Norma Hattman, Vi Hertweck, Joe Hayes, Tom Honker, Pam and Rick Scott, Dennis Dworak, Jordan Star, Irene and Ed Longley, The Shell Store, Gene Everson, Catherine Adams, Sue Hobbs and Phil Dietz, Margaret Smith, Gloria Scarboro, Billee Brown, John Bernard, Bunny Cook, Marie Goldstein, Mary Benson Brown, Jane and Ed Colburn, Barbara Smith, Indianapolis Shell Club, Len Hill, Emilio Garcia, Mal de Mer, Bobbie Houchin, Tucker Abbott, Richard Goldberg, Ed Schelling, Mary D'Aiuto, Georgette LaForet, Tom Shepherd, Bea Sweet, Leslie Allen Crnkovic, José and Marcus Coltro, Norma King, John Baker, Eloise and Don Bosch.

A special raffle of a Golden Cowry donated by the **Lipes**, and conducted by **Ginger Von Eiff**, **Chip Chippeaux** and **Mili Backus**, was won by **Phyllis Grimm**. Silent auctions, under the guidance of **Edie Mugridge**, **Pat Burke**, **Norma Chuback** and **Georgette LaForet**, ran through the sessions, generating lots of excitement, competition and revenue. Convention Treasurer **Mike Cousins** reported that the combined auctions raised over \$10,000.

Thursday's exceptional morning programs, "Shelling at Utila Island, Honduras," by **Rob Masino**; "Shelling in Tobago and Belize," by

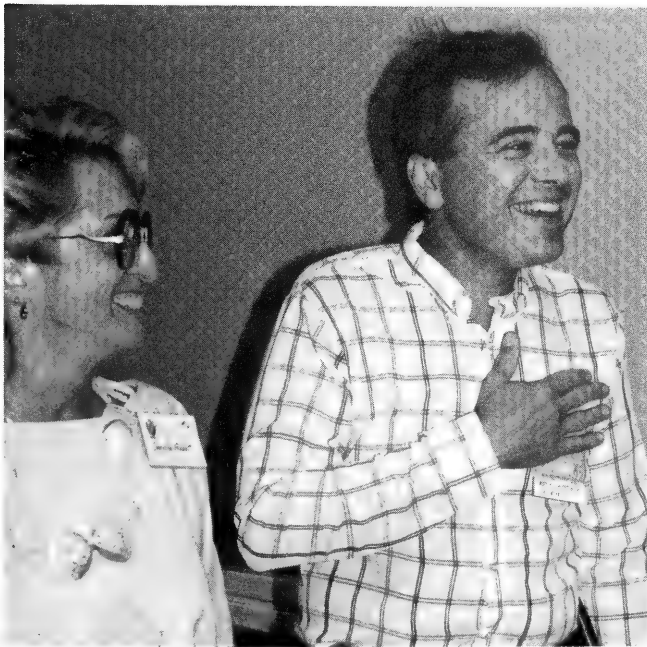


Photo by Pam Scott

**Alan Gettleman**, new COA President, taking his oath of office seriously.

**Peggy Williams**; and "Sound in the Sea," by **Hank Foglino**, were followed by drawings for the *Pleurotomaria africana*, donated by **Richard Kurz** and won by **Linda Castro**, and a *Cypraea tigris schilderiana*, donated by **Jackie and Ed Hanley** and won by **John Baker**. Enthusiasm for the field trips that afternoon to the Thomas Edison Winter Home and the Shell Factory was undampened by a summer shower.



Photo by Pam Scott

**Len Hill** and customer at the Bourse.

The magnificent Dealers Bourse, under the supervision of **Bill Hallstead** and **Dennis Dworak**, filled three huge ballrooms, and was a sight to behold when doors opened on Thursday evening. Twenty-nine dealers manned 73 tables filled with rare and beautiful shells.

Friday's Poolside Party, under the direction of **Gene Herbert** assisted by **Walter Sage**, was a great success, or so Simon says. The party finally ran out of steam as participants drifted off, to swim outdoors, to shower, to dress for the evening festivities.

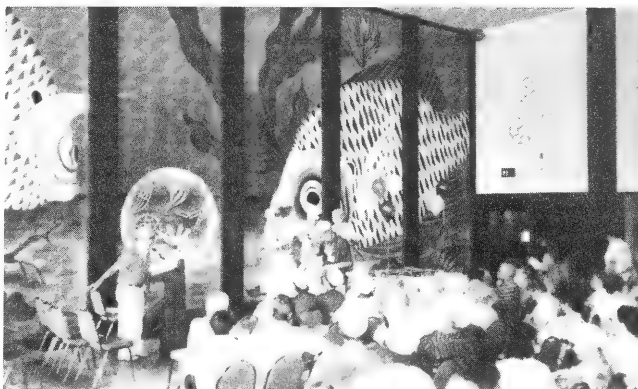


Photo by Gertrude Moller

"Simon Says" this is the Poolside Party!

The Christmas in July Banquet got off to a grand start as everyone assembled outside the ballrooms for a social Get-Together. **Jean Hallstead** and her crew had crafted 40 shell-decorated Christmas Trees as centerpieces for the tables, destined to go home with the diner who had the most pennies. After a superb meal and lots of introductions and thank you's, **Dr. R. Tucker Abbott** introduced distinguished guest speaker, **Emily Vokes** from the Department of Geology at Tulane University in New Orleans, whose slide presentation, "Shelling Around the World," was the highlight of the evening and the conclusion to a superb and memorable Convention.

**Dennis and Priscilla Dworak**, chairmen of one of the two post-Convention fossil trips, reported, in a fitting conclusion to this gem of a convention:





Photo by Cecelia Abbott

**Tucker Abbott presenting Walter Sage with the original Sue Stephens drawing for the June 1988 *American Conchologist*.**

"The finishing touch to the 'Sweet 16' was the trip to APAC. 112 visitors stayed over to go fossiling and meet **Dr. Ed Petuch** in Sarasota . . . Dr. Petuch gave a briefing on the strata of the pits and what to look for in the various layers. He then spent several hours identifying the finds and writing down names for finders. One lucky member

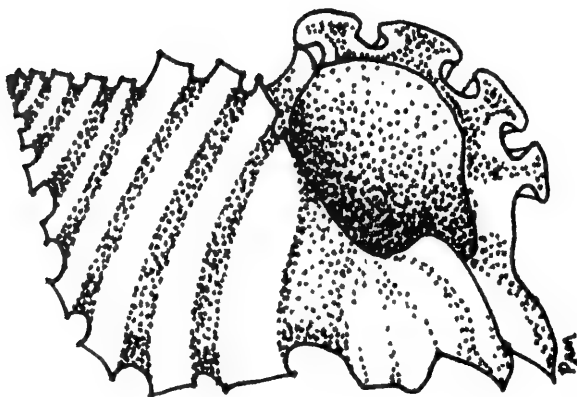


Photo by Gertrude Moller

**On the "wash piles" at the fossil pit.**

found two lovely pearls by the wash pile and others added *Ecphoras* to their collections. Fossilers were encouraged to sit in the shade, have a cool drink and relax. But, as one COAer remarked, 'I haven't the time. This is so exciting I have to dig some more.' "

Thanks, with all our hearts, SWFCS! And Sanibel-Captiva too!



Drawing by Pam Scott.

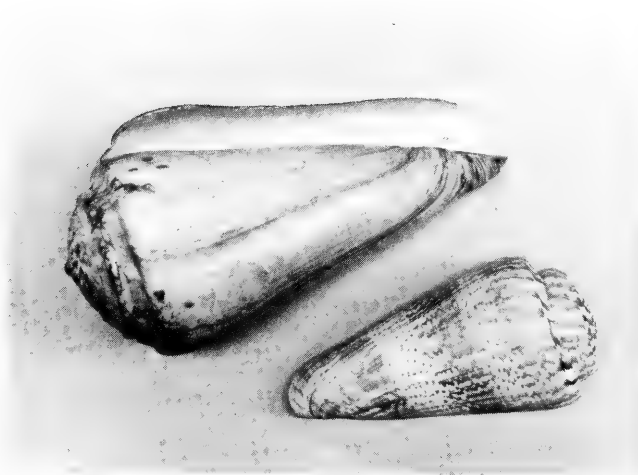
## ECPHORA FEVER

by R. Tucker Abbott

If you're smitten by those glamorously ridged muricid fossils, known to fossil pit explorers as *Ecphora*, then you'll revel in the recent explosion of subgenera and species from Florida, Maryland and Virginia. The authors of these new taxa are Petuch, Ward and Gilinsky, three paleontologists publishing in *Notulae Naturae* (no. 469, March, 1988) and the *Bulletin of Paleomalacology*. The former publication may be purchased from the Academy of Natural Sciences, Philadelphia, PA 19103, and the latter from P.O. Box 8068, Charlottesville, VA 22906.

Three separate papers are beautifully illustrated with about thirteen new species and subspecies, one new subfamily, one new genus and one new subgenus. The authors seem to be synonymizing each other's species and creating new synonyms. A thorough review of the group in the distant future will probably settle the confusion.

Of interest to our readers are two new fossils, one named for COA member Vi Hertweck (*Ecphora violetae* Petuch, 1988) and the other for her and her late husband, Charlie, (*Muricanthus hertweckorum* Petuch, 1987 is claimed by Ward and Gilinsky to be a synonym of good old *guadricostata* (Say, 1824).



Photos by John Timmerman

***Conus pulcher* Lightfoot, 1786. Large specimen 25cm. AMNH #24924. Smaller specimen 17cm. AMNH #170617.**

### Spotlight

#### "CONUS MONSTROSUS:"

***Conus pulcher* Lightfoot, 1786.**

by John Timmerman

These *Conus pulcher* Lightfoot, 1786 are in the collection of the American Museum of Natural History. The largest is the world record size specimen listed in the 1985 edition of Wagner and Abbott's World Size Records, under *Conus prometheus*. It measures 25cm length and appears to have been taken very fresh dead if not alive. It's a dull white throughout, heavy in weight, and has extensive borings on the

If you'd like to know more about those molluscan egg capsules you find on the beach, send for Beatrice Winner's excellent and well-illustrated little book, **A Field Guide to Molluscan Spawn, Volume I**. It's only \$9.95 (prepaid) plus \$1.50 s/h in the U.S., or \$3.85 for overseas airmail. Write to E.B.M., North Palm Beach, FL 33408. Make checks payable to Beatrice Winner.

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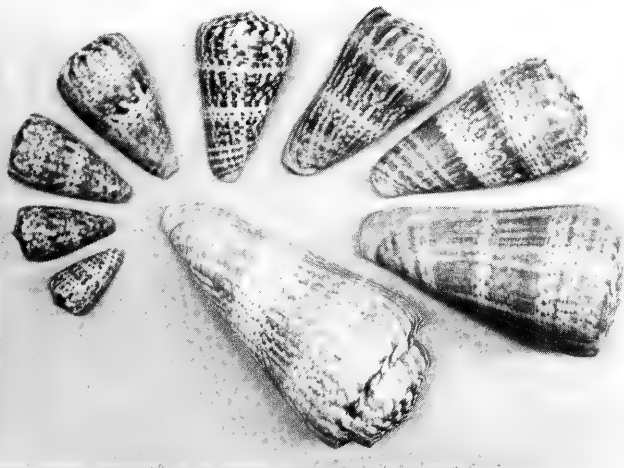
### SHELL PLATE COLLECTOR'S SERIES

The first plate in a series of six features *Voluta ebraea* in gold, with a blue rim.

Write to:

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P.O. Box 62  
Fox River Grove, IL 60021  
312/658-9096

The artist is Holly Coovert from Dayton, Ohio.



*Conus pulcher* Lightfoot, 1786. Growth series.

dorsum. Collected off Senegal, West Africa. It was acquired by AMNH in 1893 from D. J. Steward, an early trustee of the museum. The interesting turreted specimen measures 17cm and was collected off Lanzarote, Canary Islands in August, 1967. It was acquired by the Museum about 1980 as part of the John E. Holeman collection. I have included it in both photographs to give a reference as to size of the largest specimen compared to the growth series.

Thanks to Walter Sage for his help in providing resource material.



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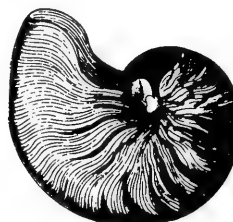
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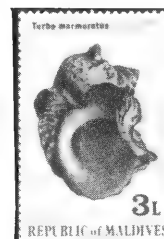
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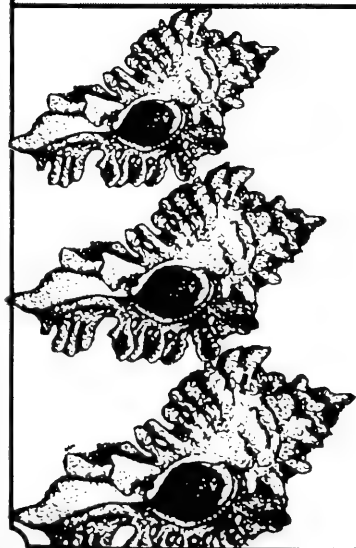
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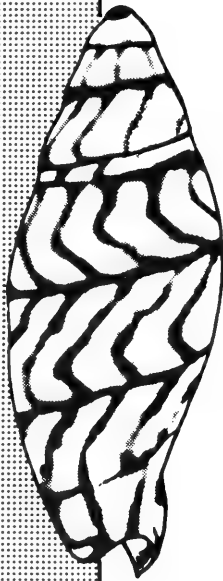
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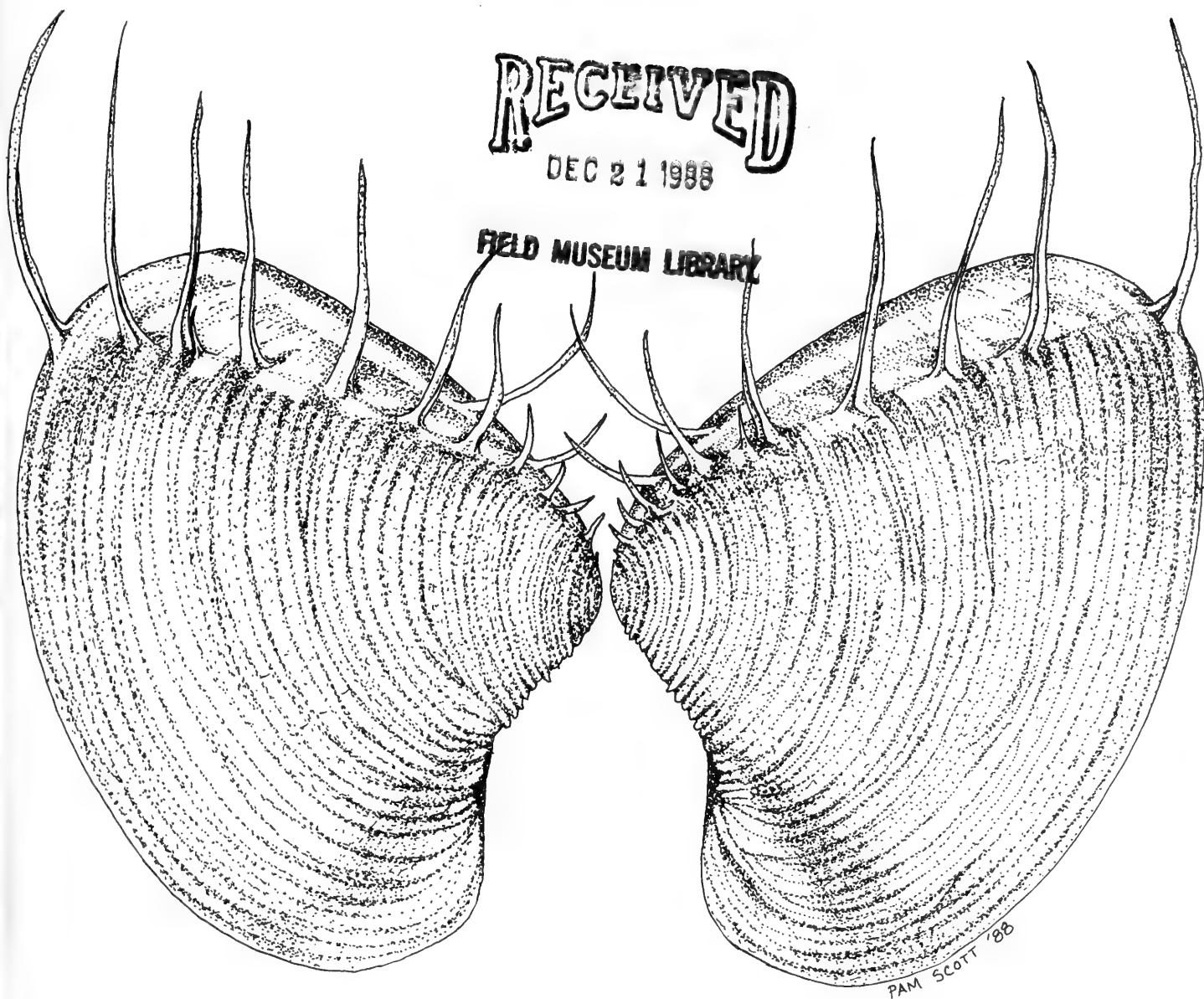
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 16, NO. 4

DECEMBER 1988



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and world. An annual convention is held each year in a different part of the country.

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**COVER:** Pam Scott's pen-and-ink drawing of *Pitar lupanarius* (Lesson, 1830), a Panamic venus clam from Costa Rica. The model was a 60mm specimen on loan from Al Deynzer, Showcase Shells.

## OOPS!

If you are a terebra fancier and read Gene Everson's article "Cocos Island and the Galapagos," in the September issue of *American Conchologist*, you may be wondering about the "name change" for the Marlin-Spike, from *Terebra maculata* (Linné, 1758) to *Terebra tessulatus* (Born, 1778). You'll be relieved to learn that the Gremlin did it. It was actually a typographical error. A line of the original copy was left out when the article was typeset. The text should read: "The most common of these is the well-known Indo-Pacific Marlin Spike, *Terebra maculata* (Linné, 1758). The commonest cone on Cocos is *Conus tessulatus* Born, 1778." Our apologies, Gene!

### Another State Shell

The State of New York has officially adopted a state shell, *Argopecten irradians*. The Bay Scallop beat out both oysters and clams for the honor. We hope that they don't also designate these tasty little mollusks as protected!

## PRESIDENT'S MESSAGE

Imagine the thrill of having lived during the "Golden Age of Conchology." Great voyages of exploration by European traders and scientists discovered entire new worlds. By "rounding the Horn" into the Pacific Ocean or "rounding the Cape" into the Indian Ocean, explorers discovered islands with thousands of unknown species. At the same time, the Enlightenment brought about a class of wealthy individuals who assembled and studied great collector's cabinets of exotic conchological curiosities.

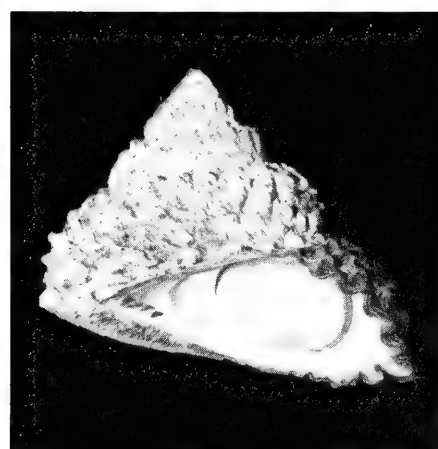
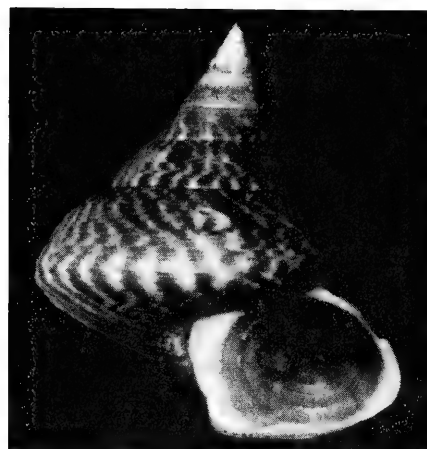
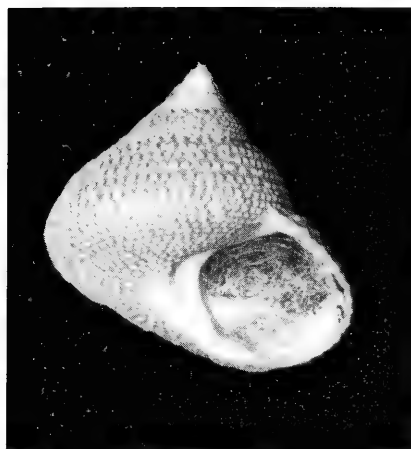
Some wise observers have commented that we are right now emerging into a second great age of conchology. Just when we think all the great shell discoveries have been made, the wealth of scientific knowledge grows by leaps and bounds. New worlds continue to emerge — from the huge clams living near volcanic vents in the Pacific to Alan Solem's *Ba humbug* and other hundreds of species from the unlikely and remote Australian desert; new knowledge is exploding onto the scene. Who could have predicted the bonanza of the tangle nets bringing up all that wealth of Philippine shells? We can only imagine what tangle nets could discover in the Lower Caribbean, off Western Africa, or in the Seychelles. And travel has never been easier; more people than ever are traveling greater distances for mollusks.

Which brings us around to the purpose of this column. Whether you are an armchair collector or an avid scientific student, a wealth of information on mollusks is emerging from all this. Few channels serve as well as COA's flagship publication, *American Conchologist*, to provide you with a world of information on our science and our hobby. You are a part of this information revolution when you belong to COA; and COA is dedicated to providing you with the best general publication on conchology in the world — along with expanded format for more material and frequent use of color plates. *American Conchologist* is your quarterly window on the conchological world — make sure you have sent in your renewal to the COA and tell your friends and shell club members about *American Conchologist* and COA. It will help us increase the ever widening circle of conchologists worldwide. And join us in beautiful San Diego for this year's convention in June, 1989. The best in programs from east and west — it will be an exciting, informative and enjoyable event for all. We hope to see you there.

Alan



**A Xenophora with a taste for the rare and expensive:** After an early flirtation with black hunks of coal-like rock, this individual *Xenophora pallidula* Reeve from Durban, South Africa, developed a predilection for volutes, specifically the rare *Volutocorbis semirugata* Rehder & Weaver of which it has collected 5, and pretty much in near Gem condition! Photo by Glass & Foster, The Abbey Specimen Shells, Santa Barbara, CA.



All photos by the author.

NEW ZEALAND TROCHACEA: *Maurea punctulata*, 25mm; *Maurea tigris*, 43mm; and the turban, *Cookia sulcata*, 50mm.

## COLLECTING SHELLS IN NEW ZEALAND

by Albert F. Chadwick

In October and November, 1985 my wife and I spent four weeks in New Zealand with joint objectives of collecting shells and seeing the country, during their Spring. We enjoyed it so much that we went back for four more weeks in 1986 to do more collecting and see the scenery we had missed.

New Zealand has two main islands, each about 600 miles long; it equals in size the combined areas of New York, New Jersey and Pennsylvania. The population, over three million, is concentrated in a few major cities. In distance from the Equator, the northern tip, Cape Reinga, is about equivalent to Wilmington, North Carolina, while the southern tip is compared to Cape Breton Island, Nova Scotia. Australia, the nearest large land mass, is over a thousand miles west.

The major factors affecting New Zealand's weather are warm currents flowing south along the coasts. The northern half of North Island is subtropical, but without the temperature extremes of the southeastern U.S. The temperatures throughout are much more moderate than would be expected by a comparison with the north Atlantic coast of the U.S. and Canada.

The marine molluscan fauna has been estimated at over 1500 species, many of which are endemic. Although the diversity is greatest off the northeast coast from Cape Reinga to East Cape, many shallow water species are found on both islands. The fauna is quite different from that of tropical areas to the north. Cowries and cones are almost completely absent.

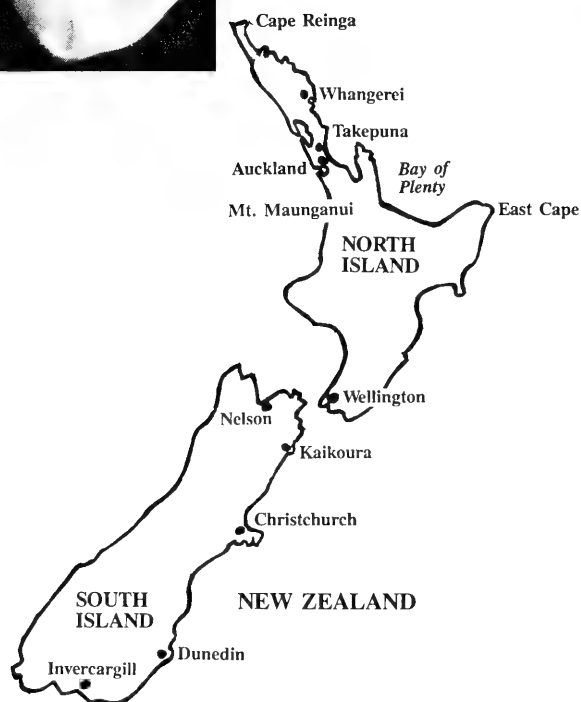
Many areas throughout the country are good for intertidal and shallow water collecting. Habitats included sandy beaches with drift lines, intertidal sand flats, areas with turnable rocks, rock platforms and rock walls.

We encountered relatively large quantities of drift at: Takepuna and Orewa beaches north of Auckland, Church Bay east of Whangerei, Pahia and Tokerau in the northeast, several beaches near Paraparamau on the west coast north of Wellington, Tahunanui Beach west of Nelson, Warrington Beach north of Dunedin, and Oreti Beach west of Invercargill. Of course, the productivity of these beaches depends on offshore weather patterns. Church Bay and Pahia beaches had considerable quantities of drift in 1985 but almost none in 1986. Several days of northeast winds before we collected at Takapuna Beach, resulted in abnormally good collecting.

The most interesting sand flats we visited were at Parengarenga Harbor, about 15 miles southeast of Cape Reinga. At low tide, what appears to be several square miles of sand is exposed. Unfortunately,



*Strutholaria papulosa*, 69mm; the New Zealand version of the conchs. Note the similarity to a strombid operculum.





we were only able to observe one low tide there. There were many mollusks in evidence, but the number of species wasn't as great as can be found there.

Good areas of turnable rocks were at Takepuna Beach, Town Point at Maketu in the Bay of Plenty area and at Warrington Beach. Areas with rock benches or walls included Mount Maunganui on the Bay of Plenty and the Kaikoura Peninsula.

The poorest collecting area, the west coast of South Island, had some of the most spectacular scenery.

I won't list all the species we took, but I want to discuss a few of our more interesting observations. For consistency, I shall follow the Taxonomic system used by A.W.B. Powell in his 1979 *New Zealand Mollusca*. Other authors differ with Powell, especially on several of the generic names he used.

Our first contact with a New Zealand shell actually took place in Florida. We purchased a beautiful blue butterfly pendant made from the Paua shell, *Haliotis iris* Gmelin, 1791. Found throughout the country, it is more common in the south. We found dead shells at many locations but only found live adults on intertidal rocks on South Island — it's over-collected since the animal is considered a delicacy and the shells are used in jewelry and crafts.

Under rocks on both islands is *Scutus breviculus* (Blainville, 1817), an unusual fissurellid, a large black slug with a nearly hidden, surprisingly small flat shell.

Patellid limpets of the genus *Cellana* are common in rocky areas. The most attractive we found is *C. flava* (Hutton, 1873), an orange-yellow shell. Apparently found only in certain exposed coastal locations, it is very abundant at Kaikoura, especially on platforms of soft limestone. We found these limpets, when the tide was out, settled in pits they had ground in the rock. These pits almost fit the circumference of the shell and were deep enough that we had to scrape away some rock before we could pry off the shell.

Another unusual limpet, *Atalacmaea fragilis* (Sowerby, 1832), so thin and flat it doesn't appear to have room for a body, is found only on smooth, rounded rocks. Because of its fragility one must slide rather than pry it off. Near transparent, it has brown rings concentric to the apex.

The Trochidae are represented by many species. The most attractive of these are two relatively large (20-40mm) *Cantharidus* species living offshore on brown seaweed, and several species of the genus *Maurea*. We found several live specimens of the reddish *C. purpureus* (Gmelin, 1791), blown ashore with seaweed on the northeast beaches. *Maurea* species resemble *Calliostoma* but are larger and thinner than typical *Calliostoma*. *Maurea tigris* (Gmelin, 1791) and *M. punctulata* (Martyn, 1784) are particularly attractive.

*Cookia sulcata* (Gmelin, 1791) is a large, heavy star shell which we found on rocks near or below on the low tide line. The largest we found was 75mm, but it reaches 90mm. It is apparently easily dislodged from offshore rocks because we found live specimens washed in on sand beaches.

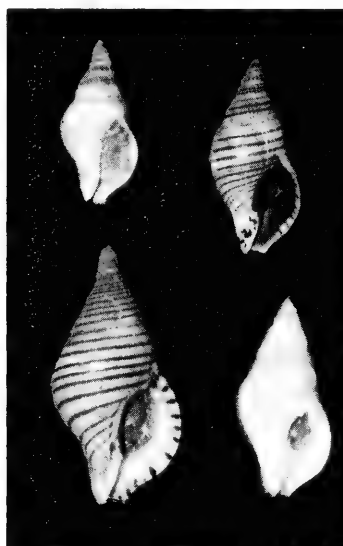
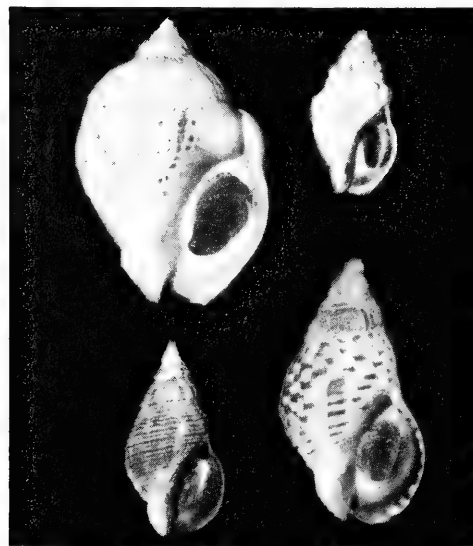
Although New Zealand has no Strombidae, the closely related Strutholariidae appear to fill a similar role. Large numbers of *Strutholaria papulosa* (Martyn, 1784) live in sandy shallows around both islands. We found many, including some live specimens washed in on northern beaches. Note in the picture that the operculum somewhat resembles that of a *Strombus*: it doesn't fill the aperture and is quite pointed.

As might be expected, species of Thaididae are present in most rocky areas. The most common species is the relatively small *Lepsiella scobina* (Quoy and Gaimard, 1833). Young specimens of this species are found on very small barnacles which are their prey. Larger individuals prey on mussels. We found this species in almost every rocky area on both islands. At Kaikoura we found specimens of the larger and less common *Haustrum haustorium* (Gmelin, 1791) which were eating the common trochid *Melagraphia aethiops* (Gmelin, 1791). The largest representative of this family, *Thais orbita* (Gmelin, 1791) was found nearer the low tide line, the largest specimens in crevices exposed to vigorous surf.

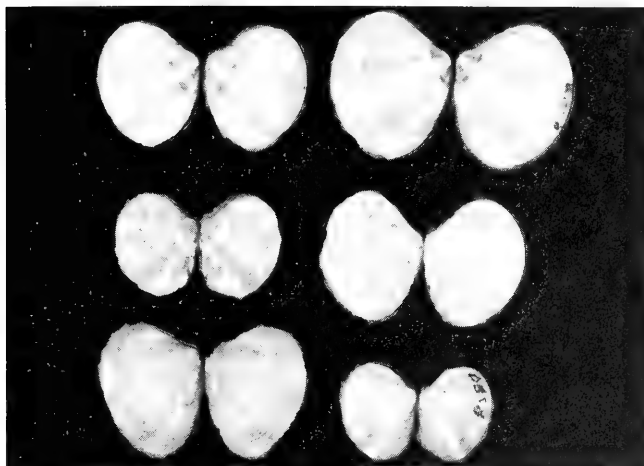
The Buccinidae are also well represented. Most common are the genus *Cominella*. Although there are a few Nassariidae in New Zealand, they are not very common. It appears that the *Cominella* have taken over general scavenging in the intertidal area. We found the largest species, *C. adspersa* (Bruguière, 1789), as far south as Nelson, primarily in sandy areas, occasionally on rocks. At Orewa and Parengarenga Harbor, we saw them burying themselves in sand as the tide receded. The next largest species, *C. maculosa* (Martyn, 1784) was in rocky areas as far south as Christchurch. *C. virgata* H. & A. Adams, 1853, which we found only on North Island, was the only species we observed in the act of feeding. At Pahia we found a *Cymatium spengleri* (Perry, 1811) which had its apex broken off. Three *C. virgata* were busily eating the body through the resulting hole. The fourth of the commonly encountered species, *C. glandiformis* (Reeve, 1847), has the common name, Mud Cominella. We found it in mud as well as sand and grass as far south as Kaikoura.

Powell lists 13 species and subspecies of *Buccinulum*. We found many forms in the lower intertidal zone among rocks but intra-species variability and small contrast between species kept me from determining how many species were represented.

Another buccinid species, *Austrofusus glans* (Röding, 1798) was present on most beaches but was washed up in large quantities on



NEW ZEALAND BUCCINIDAE: Left — clockwise from upper left: *Cominella adspersa*, 46mm; *Cominella glandiformis*, 26mm, *Cominella virgata*, 30mm; *Cominella maculosa*, 43mm. Center: *Buccinulum* species, 21-33mm. Right: *Austrofusus glans*, 35mm.



Left: *Thais orbita*, 79mm; Upper right: *Lepsiella scobina*, 28mm; Lower right: *Haustrum haustrum*, 52mm.



*Bassina yatei*, 51mm.

the beaches northwest of Wellington.

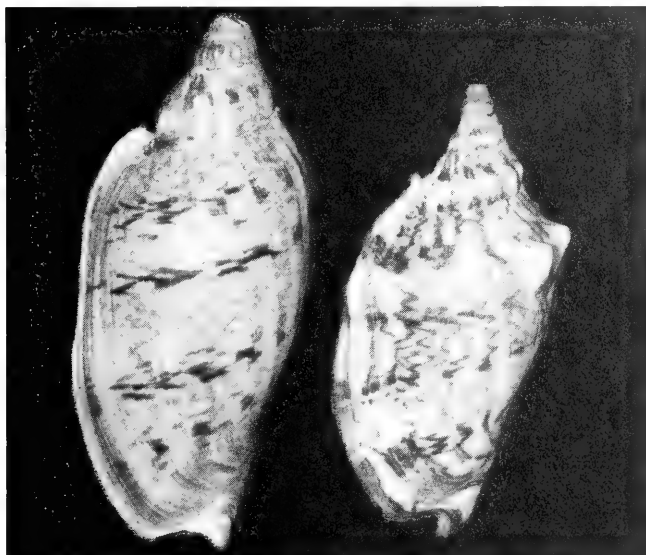
The Olividae are represented by several species of *Amalda*. At Parengarenga Harbor the most common species on the sand flats besides *Cominella glandiformis* and two *Zeacumantus* species was *A. (Baryspira) australis* (Sowerby, 1830). There were literally hundreds of them crawling through the wet sand.

At this same location I observed a white mass emerging from the sand as the tide turned. Although it superficially resembled a *Sinum*, I found that it was the cephalopod, *Philene angasi* Crosse and Fischer, 1865. The fragile 22mm shell was almost completely covered by the animal.

Two common shallow-water volutes, *Alcithoe arabica* (Gmelin,

mon name, "cockles," because they reminded British settlers of *Cerastoderma edule* (Linne, 1758), England's edible cockle. To me the most attractive venerids are the frilled *Bassina yatei* (Gray, 1835) and *Tawera spissa* (Deshayes, 1835) with endless patterns in white and shades of brown.

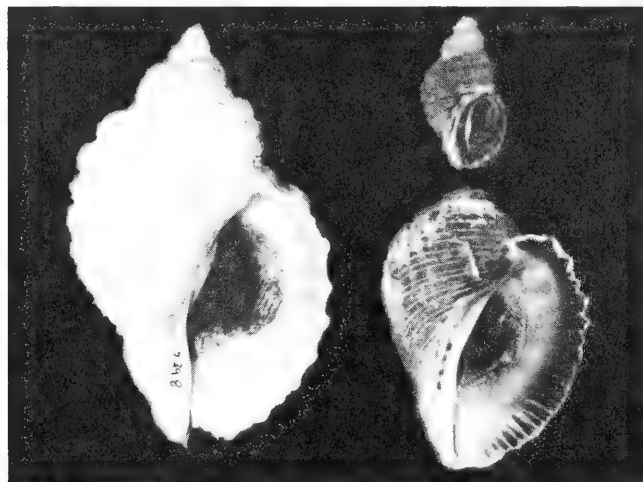
Besides scallops and oysters, the most highly regarded edible bivalves are three species of Mesodesmatidae: *Paphies australis* (Gmelin, 1791), the "Pipi;" *P. subtriangulata* (Wood, 1828), the "Tuatua;" and *P. ventricosa* (Gray, 1843), the "Toheroa." The former two are very common on sandy beaches everywhere. The Toheroa, considered a real delicacy, has been over-collected, so it is strictly protected.



*Alcithoe swainsoni*, 100mm. *Alcithoe arabica*, 86mm.

1791) and *A. swainsoni* Marwick, 1926, are frequently washed up on beaches. The color patterns of the two species are similar (see photo), the major difference being the presence of shoulder nodes on *A. arabica*. Some collectors expressed the opinion that they are forms of one species.

On many beaches, most shells in the drift were bivalves, of which there are a large diversity in New Zealand. The Veneridae family appeared most prolific. At Parengarenga Harbor we saw local residents collecting bags of *Chione stueburyi* (Wood, 1868), superficially like the north Atlantic *Chione cancellata*. Presumably they got their com-



*Tawera spissa*, 18-25mm.

The bivalves we collected also included the only two species we have found in both the U.S. and New Zealand: *Mytilus edulis* Linne, 1758 and *Hiattella arctica* (Linne, 1767). Local specimens of the former look much like U.S. forms, but Powell in 1958 named the subspecies *aotanus* for them.

New Zealand is also a fertile area for chiton collectors. Common in almost all rocky areas, chitons appeared to be clinging to the underside of every rock on Takapuna Beach.

By the end of our second trip we had several hundred species. Very important to our success was the advice and assistance we received from local collectors who also provided specimens of many species we hadn't found ourselves.

## TAXONOMY: HOW AND WHY WE DO WHAT WE DO

by Gary Coovert

*It's happened to us all . . . just when we finally succeed in learning the Latin name of the Angel Wing, just when we've begun to feel at home with the polysyllabic *Cyrtopleura costata*, to relish the feel of it in our mouths and the symmetry of it in our ears, some busybody changes *Cyrtopleura* to *Barnea*! Why the new name sounds downright unworthy! And we KNOW we'll NEVER remember it! Then some other busybody dumps our old familiar family name for the tritons, *Cymatiidae*, into the Used Synonym Bin and pulls out the unfamiliar name, *Ranellidae* in its place! So inappropriate sounding, so unfair, we cry! Why? And WHO? What sort of a person would undercut our little island of knowledge like this? Meet one of these iconoclasts, and see the world through his eyes! He's really just a hat collector, of sorts.*

The first point to be made in gaining an understanding of a taxonomist is that we would do what we do whether or not we got paid. Indeed, many taxonomists don't get paid (and most who do get paid are well below the monetary compensation level of garbagemen), But please — do not repeat this. We would not want word to get back to the "proper authorities."

So why do we do what we do? A number of my entomological colleagues (Yes, besides being a systematic malacologist, I'm also a systematic entomologist, specializing in the family Syrphidae or hoverflies . . . another story) were discussing this subject one spring day at lunch break (characteristically brief so as to get back to the business of taxonomy). We concluded that we do what we do because we totally enjoy what we do. Sure, there are numerous rationalizations: economically important organisms, knowledge for knowledge's sake, etc. . . . but the bottom line is that we enjoy what we do.

You see, taxonomy is a many-faceted endeavor, and we enjoy all these many facets. In fact, they may be part of the attraction. So let's have a look at these facets and try to glimpse what a taxonomist is and what he does ("he" being used generically . . . don't want to offend anyone of the opposite sex). (Please excuse the numerous parenthetical asides . . . taxonomists tend to be thorough; we wouldn't want to leave out any ancillary information.)

To begin, let's start at the beginning (another trait of a taxonomist — an unquenchable drive towards logical orderliness). Taxonomists aren't created — this is not a learned trait . . . taxonomists are born taxonomists. The most recognizable trait in their formative years is the **Collector** instinct. This is an innate characteristic — definitely not learned behavior (at least not in a taxonomist); it's perhaps a thwarted hunting instinct, left over from our knuckle-dragging ancestors. That gut-feeling associated with snatching out of mid-air a hovering prize, a species not previously represented in the collection, does somehow have a primal feel to it.

The focus of this collector instinct in the early stages can be anything — car license numbers, paper clips, cigarette packs, more recently, beer cans and Star Wars models. And the primary aim of the collector involves the acquisition of as many different kinds as possible.

But then one day, the neotenic taxonomist discovers a group of objects in nature. Now think on this for a moment . . . he has 1) an innate drive to collect; 2) a primary aim to acquire as many different kinds as possible; 3) followed by discovery of a group of objects whose diversity far surpasses anything man ever manufactured. So the neotenic taxonomist with the innate collector instinct has discovered the wonderful, nearly boundless diversity of nature. Once again he's off, and again, it can be anything: leaves, butterflies, fossils, sea shells, insects, seeds . . . and it doesn't even have to be a collection of the objects themselves: a checklist of birds' names will suffice — the checkmarks become the collection. The instinct is nourished; it grows and develops.

Soon though, a subtle but very important change begins to occur, a very vital change, without which a collector will remain just a col-

lector. And that is the development of the urge — no, the burning desire — to learn everything there is to learn about his chosen group of objects. Now this urge supports and partly replaces the old overpowering urge to acquire as many different kinds as possible. The neotenic taxonomist becomes a budding taxonomist. This development is fed and nurtured by books, lots of books. Libraries become "cathedrals of the mind." This is the next skill a taxonomist needs to master — **Librarian**. But the literature of science is not written in one language. So the taxonomist also needs to become a **Linguist**.

Merely learning about his subject is soon not enough. The taxonomist-in-the-making must put a name on it, but if any reasonably accurate name satisfies, a taxonomist he will not become. A real taxonomist demands the **correct** name, leading to a historic foray back through the literature to where some kindred soul originally affixed a name to that particular subject of study. Keep in mind that the roots of taxonomy go back to Carl von Linné, making it necessary to comb through 230 years of literature. Now the taxonomist needs to be a Librarian, a Linguist and a **Historian**. And in the process, he undergoes a distinct habitat shift, from just any library to a library with **old** books, normally a university library.

But these dusty old descriptions can't merely be thumbed through like a cheap novel. They must be taken back verbatim to compare carefully with an object under study. This used to mean laboriously hand-copying, word-for-word, but then along came a wonderful invention — technology again triumphs! We call them xerox machines, just as many call a refrigerator, any refrigerator, a frigidaire; or an adjustable wrench a crescent wrench; or . . . well, you get the idea. Armed with this new technology, the neophyte taxonomist can begin filling file drawers with xerox copies, oops, photocopies, of all the pertinent literature and descriptions of the whole group under study. Lots and lots of file drawers . . .

But wait a minute! Where did all this begin . . . ? Let's see: "collector's instinct;" desire to acquire; discovery of objects of nature . . . oh yes! Objects of nature — that means the outdoors. And that's the real key to understanding a taxonomist. How many taxonomists are **Outdoorsmen**, love to hike, or camp or fish? Hold up your hands so I can count . . . one, two . . . There! The love of nature seems to be universal among us. But what happens when the taxonomist enters the outdoors? A rapid transition occurs, almost a Jekyll and Hyde, but far less sinister. The taxonomist, the collector, becomes a **Field Biologist**. Armed with various paraphernalia — collecting bottles, nets, jars, shoulder bags, binoculars (no pith helmet . . . usually) — the taxonomist takes to the field. And if he happens to be a Systematic Entomologist specializing in Syrphidae, no hoverfly is safe. Or perhaps crayfish, or fossil marine shells, or troglobitic crustaceans. But remember, the taxonomist is thorough, so what ensues is a study in the technology of collecting apparatus — modifications here, improvements there . . . a better mouse trap.

Now, gradually, the local fauna and flora become better and better represented in the collection of our taxonomist, and through his intense study, they become more and more understood. But the more he learns, the more he realizes that there is to learn. His logical solution to this dilemma? Broaden the scope and add even more to what needs to be learned.

Now, instead of studying Brazilian cave mites, the taxonomist studies worldwide troglobitic mites, as well as their evolutionary and zoogeographic implications. More fields to master! Geography! Any competent taxonomist is a **Geographer**, able to put a finger immediately upon Reunion in the Indian Ocean, or pinpoint the Chiricahua Mountains in Arizona. And Evolution! Of paramount importance! Biological diversity is the product of evolution. Evolution is the mechanism; our classification should reflect the evolutionary history which gave rise to them — this cannot be too strongly emphasized.

Before Darwin, our classifications were merely neat, orderly groupings; evolution has breathed life and meaning into them. So any truly competent taxonomist, ever striving for a more and more correct interpretation, becomes an **Evolutionary Biologist**. In many cases, this leads to a study of the fossil record, so the taxonomist must also become a **Paleontologist**. And putting these last three fields together — geography, evolution and paleontology, he is drawn into biogeography. But this necessitates that he become a **Geologist** to fully appreciate the mechanisms of plate tectonics or continental drift. Oh! and physics and astronomy, if he's fully to grasp the changes in the earth. But we're straying now. Or are we? This is part of the point . . . **taxonomy is a synthesis of any and all information which can pertain to a group of organisms**. Leaving any information out risks a wrong conclusion. And remember, a "real" taxonomist is thorough — obsessively thorough.

To study and classify the group under examination, a taxonomist has to be able to name and discuss the various parts, down to particular bristles and hairs. So he has to be a **Morphologist**. But this is just the surface — below it lies the internal anatomy. So the taxonomist needs to be an **Anatomist** as well. And in more cases than not, these two areas of expertise require that he be a **Microscopist** too. And since genetics is at the heart of why organisms are what they are, he needs to be a **Geneticist**. And a **General Zoologist**, and a **General Botanist**, because without a good background in other groups of organisms, our taxonomist would be working in a vacuum. Any organism interacts with other organisms in its environment, and he must understand that environment so he becomes an **Ecologist**.

Now that the Taxonomist has all these fields mastered, and his organism thoroughly studied, the only thing left is a name — but not just **any** name, the **correct** name. And this, of course, leads us into the field of nomenclature. Each major field of biology has its own set of rules governing how these names are to be applied. These rules (the International Code of Zoological Nomenclature in our case) are rigorously thorough (remember, they were written by taxonomists). So our taxonomist must also be, to a degree, a **Lawyer**.

By now, after the exercise of all his acquired skills, he has come up with a proper name for the natural object of his study, or concluded that no valid name exists. [Here is a good place to point out that a "real" taxonomist, one really committed to the science and possessing the unquenchable desire to learn **everything** there is about a group of organisms, is not in it primarily to name new species. In fact, there should always be a slightly uneasy feeling . . . "Gee . . . you mean that in the last 230 years no one has given a name to this creature? Maybe I should check more thoroughly." (Remember thoroughness.) And, of course, the only way to know whether a particular species has even been given a name is to know **everything** that has been written taxonomically about that group . . . every minor article, however obscure, however hard to find, however difficult to translate; if it contains a new species name, it must be examined. Without this Germanic thoroughness, the taxonomist runs the risk of naming something already named . . . one of the Cardinal sins . . . So most taxonomists specialize in one particular family in major groups like insects or mollusks, or one particular group from a restricted geographical area.] (That was a particularly long parenthetical aside!)

Now, of course, any competent scientist doesn't normally work totally alone. So to keep in touch with colleagues, it is necessary to become a **Correspondent**. But, in all fairness, it should be pointed out that, although well-meaning, most taxonomists are too solidly glued to a microscope to be overly prompt in corresponding. (The author apologizes for all of his transgressions in this area.)

The next step, then, is to write up the results of all this exhaustive research. So — you guessed it! — the taxonomist has to be a **Writer**. And this is a most important skill. I'll let Stephen Jay Gould expound on this one for me:

. . . to me, how you say a thing is enormously important. So many scientists think that once they figure it out, that's all they have to do, and writing

it up is just a chore. I never saw it that way; part of the art of any kind of total scholarship is to say it well.

In addition, since most scientific journals will not accept handwritten manuscripts, the taxonomist must also be a **Typist**. And the technological vastness of today makes the skills of a **Computer Operator** essential (more typing). Beyond merely writing, taxonomic papers invariably require illustration. Therefore the taxonomist has also to be a **Scientific Illustrator** (or marry one) in addition to being a **Photographer**.

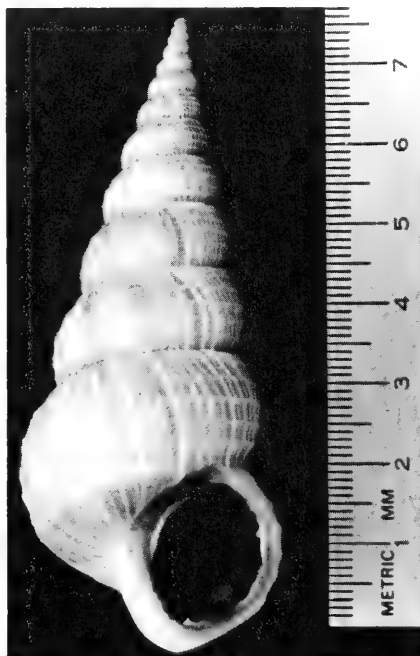
So let's inventory the various hats that a taxonomist has to wear. (Incidentally, I used to collect hats but had to give them up for 60,000 marine mollusks — the sacrifices we have to make!) The taxonomist has to be a collector, first of all; then a librarian, a linguist, historian, outdoorsman, field biologist, geographer, evolutionary biologist, paleontologist, biogeographer, geologist, morphologist, anatomist, microscopist, geneticist, zoologist, botanist, ecologist, lawyer, correspondent, writer, typist, computer operator, scientific illustrator and photographer. The hat rack is getting crowded and we haven't even discussed the particular specialty of the taxonomist!

Now, that is basically what a taxonomist is and what he does. But what is the force that drives a taxonomist? What makes him tick? We've already come to the conclusion that we do what we do because we enjoy it totally. But what is at the root of that job? Again, I'll defer to Stephen Jay Gould:

It's the single greatest joy of my intellectual life to know with intimacy the details of a part of nature, even a tiny, little part, is almost inexpressible in the pleasure it gives. I freely admit there may be only half a dozen other people in the world who care about this particular animal the way I do.

But the other reason is purely personal: there is a joy of discovery. Finding something new. It's the most unsullied, most precious kind of intellectual achievement, even if it's small. I mean to say — I found this — nobody's seen it before. It's really new, even if small, but I found it.

\*Gary Coovert, Dayton Museum of Natural History, 2629 Ridge Ave., Dayton, OH 45414, is a 1988 COA Grant Recipient. His primary molluscan interest is the Marginellidae. Gary first published this article in Vol. 3 No. 6 of his *Marginella* "Marginalia"; and later delivered it in the form of an address at the 1988 AMU convention in Charleston, South Carolina.



A world record size *Epitonium*, *Amaea fermiana* (Dall, 1908), from the collection of Vivienne Smith, has been registered with Mr. Robert Wagner at 80.25mm. Vivienne's magnificent shell was dredged this year from 200-300 feet in the Bay of Chiriqui, Panama.



## WANDERINGS OF AN ITINERANT MALACOLOGIST II La Plata Island, Ecuador

by Donald R. Shasky, M.D.

La Plata Island is a small, uninhabited island approximately 25 miles northwest of Puerto Lopez, Ecuador. In 1978, the Program for New World Anthropology was in need of a SCUBA diver-malacologist. The ancient Indians of that area had as their prime source of income the revenue obtained from trade with *Spondylus* shells. They valued *Spondylus princeps* more than gold. *Spondylus calcifer* was valued more than silver. Their trade with the shells extended over a wide range, perhaps as far north as Acapulco, Mexico. My assignment was to determine whether or not *Spondylus princeps* was still extant at La Plata Island.

When I arrived on La Plata, little did I realize what I would experience. I had anticipated diving in warm, tropical waters, since it was so close to the Equator. Fortunately I had come prepared with a full quarter inch wet suit, but that did little to protect me from the thermocline we passed through each day between 70 and 110 feet. Unless one has experienced it, it is impossible to appreciate the shock one's body takes when suddenly passing into water at 48°F. And, unfortunately, there was no warm shower in which to warm oneself when the dive was over. The leaden skies did nothing to warm our bodies or our spirits, but there was a large supply of delicious Ecuadorian chocolate after each dive, which helped to divert our attention from our shivering bodies.

Each evening, there was a conference, led out by one of the archaeological staff. After four unsuccessful days of looking for *Spondylus princeps*, I got needed by the co-director a bit during the conference for not having found my quarry. I replied that I thought that we might find them off an adjacent point the next day.

The next morning, they took me to that point. The divemaster, a lieutenant in the British Army stationed in Belfast, Northern Ireland, was to be my buddy. After we had passed through 110 feet, I began to see what had appeared to be rather large blackish objects that looked like dark cannonballs beneath us. As we passed through 130 feet, I began to get very dizzy, and realized I was on the verge of nitrogen narcosis. I signaled to my buddy that I was getting dizzy, we picked up the "cannonballs" at 136 feet, and we began our ascent. I was almost certain that we had found what we were looking for: our first *Spondylus princeps*. At 60 feet my head cleared, and I signaled to my buddy that I was okay. He then went off to spear fish, and I took my prizes to the dinghy. It wasn't until we were ashore and had cut them open that we knew for sure that our goal had been reached, since they were so heavily encrusted. We had a party — an extra ration of chocolate.

I suppose that the best shells I collected that year were *Terebra argosyia* (Olsson, 1971). I took four of these one morning while diving along over a sand bottom at 90 feet. As far as I know, these are the only known specimens except for the type lot.

In 1979, I returned to La Plata Island to continue to look for *Spondylus princeps*, as well as anything else I could find. This time the water was several degrees warmer, and we occasionally saw the sun. I found several *S. princeps* scattered here and there in depths of 80-120 feet, and much cleaner than those I had found the previous year.

There were approximately 30 of us on the island engaged in the project. Besides the scientific staff, including students from the University of Illinois, there were a number of local Indians who were well trained diggers of archaeological artifacts, and Earthwatch volunteers. In addition, there were a native cook and a boat boy.

During the last week that I was there, the project coordinator, a superior spear fisherman who supplied the whole camp with fish, was off the island. During the middle of the week, two of the staff came to tell me that the camp was out of meat and that the Indians were getting restless because of the fishless diet. I was asked if I would



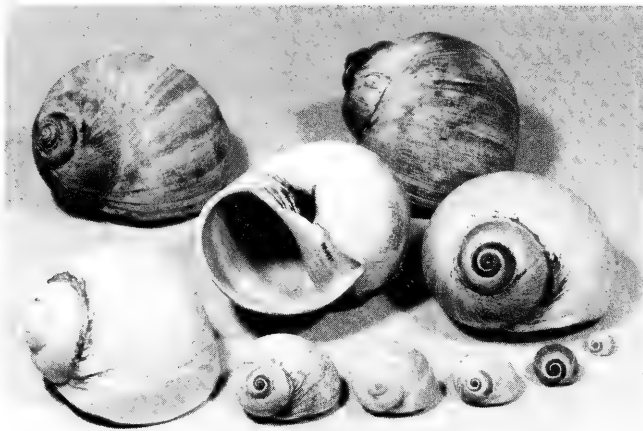
Map by John Timmerman

go down and spear a fish, something I had never done before. Early the next morning, the boat boy took me to a likely spot, and I jumped in with a spear and proceeded to the bottom at 70 feet. I was surprised at the numbers of fish that I suddenly found surrounding me, including one large amberjack. I took aim, and my spear hit right where it was supposed to, behind the gill; and it promptly bounced off. The boat boy had not pumped up the spear gun since the previous day, and I had no alternative but to go back up and have him pump it up. When I descended again to the same spot, there wasn't a fish to be seen. With two dives to 70 feet in such a short period of time, I was in no mood to go out fishing at other locations. I have yet to spear my first fish.

For two days running, I had the skiff and boat boy all to myself. We had passed over a shallow reef numerous times, and it looked like an area that should be explored. So, on the first day, I told the boat boy where I wanted to go, and I dropped down to the reef at 35 feet. This reef was covered with slabs of dead coral. One rather



Don Shasky goes native! La Plata Island, Ecuador. June, 1979.



## JERSEY MOONS

by John Timmerman

During the winter of 1986-87 I discovered shelling at Sandy Hook, New Jersey. Until that year I had never visited the "Jersey Shore" except during summer months when the chances of finding shells washed up on the beach are slim. That particular year had a series of severe coastal storms beginning in early November and lasting through February.

Sandy Hook is located at the entrance to Raritan Bay, within sight of the New York City skyline. It is crowded with people during the warm months of the year, but relatively deserted in the winter. After a good northeast wind (nor'easter) thousands of shells can be found washed up on its shores. This sounds exciting until one discovers that about 96 percent of the shells are of one type, *Spissula solidissima* (Dillwyn, 1817). Another 1.5 percent are *Lunatia heros* (Say, 1822) with the remaining percentage in other species. I still find it impressive

to see so many shells on the beach, despite the small variety. In some places the *Spissula* can be piled as deep as 12 inches! This is a cold water habitat, so the shells aren't especially colorful. I have become very fond of the *Lunatia heros* found there.

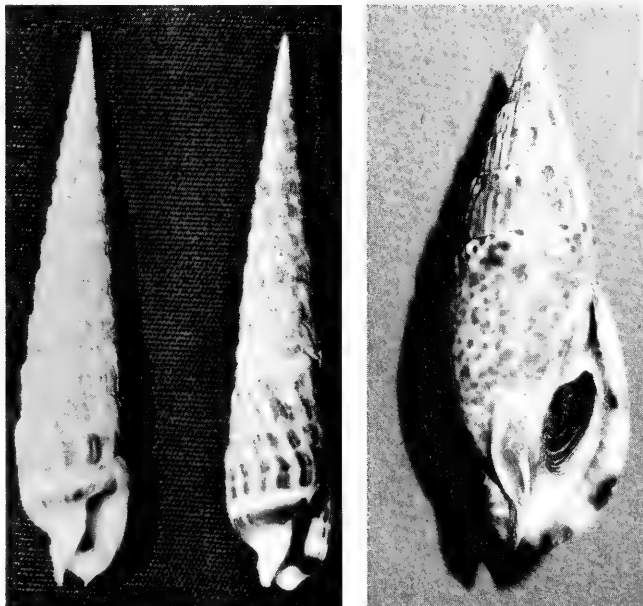
I collected at Sandy Hook on December 26, 1986 after a strong storm on Christmas Day. This proved to be the height of the collecting season for me. The photograph shows a sample of the prizes I found that day. The two large dark specimens at the rear are sub-fossil and measure 112.5mm and 112mm. These are the largest *Lunatia heros* I've ever found. The other specimens are fresh dead. The large shell on the right shows the typical color for specimens from this locale. The spire is usually eroded, exposing a dark purple-brown apex. The body of the shell is chalky white. the aperture is shades of deep brown, purple and orange. The center specimen is a less common variant that has a pink spire and pink-orange aperture. the specimen on the left is a rare, almost pure white form. The pink specimen in the center measures 103mm. and is the largest of the recent specimens I found that day.

I have visited Sandy Hook after storms many times since then but no collecting has been as great as it was that day. I have found more of the large moons in the 100mm. range, but none close to the giants I found that day.

Other shells I've found at Sandy Hook include:

*Busycon carica* (Gmelin, 1791) sub fossil  
*Busycon canaliculatum* (Linné, 1758) sub fossil, recent  
*Busycon laeostomum* (Kent, 1982) sub fossil  
*Crepidula fornicata* (Linné, 1758) recent  
*Neverita duplicata* (Say, 1822) sub fossil, recent  
*Nassarius trivittatus* (Say, 1822) recent  
*Ilyanassa obsoleta* (Say, 1822) recent  
*Ensis directus* (Conrad, 1843) recent  
*Mya arenaria* (Linné, 1758) recent  
*Mytilus edulis* (Linné, 1758) recent  
*Argopecten irradians irradians* (Lamarck, 1819) sub fossil  
*Mercenaria mercenaria* (Linné, 1758) recent  
*Astarte castanea* (Say, 1822) sub fossil, recent

large slab was bare underneath, so I began to fan the muddy silt. After fanning it two or three times, I uncovered a beautiful specimen of *Colubraria lucasensis* (Strong & Hertlein, 1937). This was the first



*Terebra argosia* (Olsson, 1971)

*Colubraria procera* (Sowerby, 1832)

one of these that I had collected alive in 19 years, and I was delighted. I continued to fan, hoping I would uncover its mate. I had fanned quite a hole when suddenly before my eyes was something that I had been seeking for many years and had never found. In fact, I had never before seen one. It was a large *Colubraria procera* (Sowerby, 1832). What a high that was!

Needless to say, the next day I returned to the same reef; and not far away, under another slab, I found two more *C. procera*. How high can you get?

The answer to that question came the next afternoon when the air in my tank was getting low while I was at 60 feet. I turned over a small piece of dead coral, and under it was a strange shell that was not like anything else I had seen before. It was Trivia-like, with a lemon-yellow body and white antennae. My thoughts were that it was either a new species or an Indo-Pacific immigrant that I did not know. The latter hunch was correct. It was *Pseudocypraea adamsonii* (Sowerby, 1832), the first and only specimen of this species ever collected within the continental shelf. It had been reported from the Galapagos, and I have since collected it at Cocos Island, Costa Rica and the Galapagos. In fact, on my recent trip to the Galapagos, I found three specimens intertidally under a rock at Bartolomé Island.

Next time, I will describe the highest high I have ever had.

## Mollusks Fed Early Man

Early hominid settlements, as old as 100,000 years, in caves at the mouth of the Klasies River in South Africa were probably prompted by the presence there of an unlimited food supply of shellfish. Brown mussels, periwinkles and limpets have been excavated there.

— National Geographic, October, 1988



## PEANUT ISLAND

by Beatrice Winner

Peanut Island, located near Lake Worth Inlet, Riviera Beach, Florida, is a man-made island resulting from the dredging of the inlet many years ago. The United States Coast Guard is based there — convenient for answering distress calls from the throngs of boaters and campers who visit the island, especially on weekends.

There are no facilities on the island. But it has a potential tourist attraction of sorts, in the form of a bomb shelter, built during the war by the Kennedy family, who have a home in Palm Beach. It has been somewhat vandalized over the years. When I first saw this camouflaged shelter, I was impressed by the number of rooms it has. Few have seen it or even know of its existence.

The Gulf Stream is closer to the Lake Worth Inlet than anywhere else along the east coast. Thus a variety of molluscan larvae and shells enter the Inlet at high tide. The rocks close to the Inlet make a convenient place for these larvae to settle and metamorphose. Many estuarine species are colonized in the area as well.

A range list was started some years back by Paul Mikkelsen of Harbor Branch Oceanographic Foundation, and was revised again in March of 1986. This four-page list tells whether the shells were found dead or alive and contains over 200 species, but many more species need to be added.

The commonest conch found there is *Strombus alatus*. I have seen shellers take buckets of them away, though I would think three or four should be sufficient for a collection. At the rate they are being collected and the rate shellers are increasing in the area, I am afraid that in the near future they will not be found at all. *Strombus pugilis* occurs there, but is not common. *Strombus costatus* is on the increase. Since the law forbids the collecting of *Strombus gigas*, their numbers are increasing. Some shellers pick them up, but when they hear of the \$500.00 fine, they put them back. In all my trips to the island over the years, I have found two *Strombus sloani*, the aberrant form of *S. pugilis* with club-shaped spines.

Occasionally I have come across some rare finds, such as a live *Cassia madagascariensis*, live *Distorsio clathrata*, and a large, live *Conus spurius*. One day I found a large, dead old *Xenophora conchyliophora*. Another find of mine was *Purpura patula*, alive and uncommon to Florida. *Tellina radiata* was found fresh dead by a sheller.

Some species have come and gone: *Planaxis nucleus* and *Architectonica nobilis*. *Oliva sayana* was very plentiful at one time but is not so common now. Another species that is almost impossible to find is *Terebra taurinus*. What is found this year might not be seen again. One year I found a colony of *Hydatina physis*, and I haven't seen another since. A recent find was two *Tellina magna*, on two different days. One was beautifully flushed with yellow, a beauty to behold. Dr. Ed Petuch has named some new species from here in his book, *New Caribbean Molluscan Faunas*.

I once found a specimen from the Pacific, *Atrys cylindrica*. The identification of the species was confirmed, and it was concluded that it probably came in on one of the ocean-going vessels.

The area around the island has changed. Sand has filled some areas, and previously sandy areas are now growing grass. At low tide, it is not possible to bring a boat in as close to the shore as in the past. The best place to settle and anchor at low tide is at the north and northeast sides.

The best time to visit the island is during the week, because then one does not have to fight the uneducated weekend boater. Accidents have happened at Peanut Island, because it seems that the percentage of boaters who have not taken boating courses is extremely high. Snorkelers have been hit by boaters, so a "diver down" flag is extremely important.

The island means much to me; it is a great source of pleasure. If time permits, the "Little Bea" takes me there several times a week, if only to snorkel and catch fish for supper. It has been most helpful to me in securing specimens to take home for aquarium study. It doesn't matter whether the tide is low or high; I never know what kind of surprise the Gulf Stream will bring me, but I enjoy the suspense.

## COA TROPHY WINNERS



Mrs. Nancy Plumb, first recipient of the COA Trophy at the Keppel Bay Shell Show, Queensland, Australia. A dedicated and accomplished exhibitor, Mrs. Plumb won firsts in four sections of the show, including a display of shells from Keppel Bay, seconds in four sections and commendations in others. Congratulations, Mrs. Plumb, and Happy Bicentennial, Australia!



Dr. Ted Baer, left, congratulates Mr. Pierre Bert of France, winner of the COA Trophy at the Salon International du Coquillage, Lutry, Switzerland for his "Variations sur Les Pectinidae."

## A SHELLER'S PARADISE

by Norman Paschall

Dawn found Ted Kalafut and me on the fifteenth floor of the Margarita Concorde Hotel in Porlamar, Margarita Island, Venezuela, looking down on a couple of miles of pristine, sandy beach, deserted and peaceful now, but not for long. First settled in 1536, Porlamar is a beautiful place for fun in the sun with its shallow southeastern harbor, a mooring for yachts and small sailboats.

My early morning walk on the beach revealed a wrack of marginellas, murex, cones, bullas, cardiums, tellins, turbos, strombs, and even a nice Music Volute. There were also plenty of small pearl oysters — at one time in the past, this area was greatly exploited for its pearls, and the Spanish are said to have shipped tons of them back to the Old World.

By the time I headed back to show off my loot to Ted, the beach had become alive with beach chairs, cabanas, umbrellas and bikini-clad sun worshippers. Pearl oysters were being sold — open on paper plates with fresh-cut wedges of lime — a Margarita Island breakfast. They also serve *Murex margaritensis* Abbott, 1955, boiled and sprinkled with fresh lime juice. We soon taught them how to roll the animal out of its beautiful shell without destroying the specimen.

Local map in hand, we saw that we'd need transportation and a good knowledgeable guide to reach our chosen destinations. Then it was off to Pampator and the Playa Guacuco area to the south, where we visited the San Carlos Castle and its sea caves. Collecting was fantastic here, but a rough sea and murky water kept us on the beach. We collected several Music Volutes and a strange fusinus, there in the beach wrack.

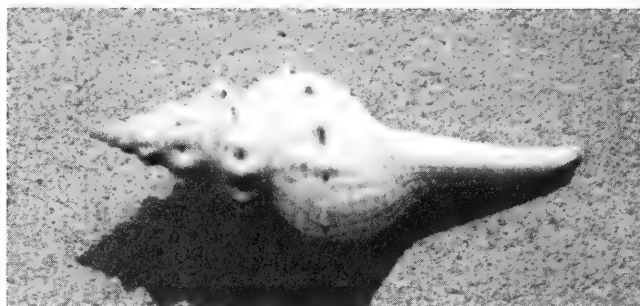
On Day Two, we tried the Bahia de Guaroquao Beach, where we again found a heavy surf and poor visibility. We soon discovered a quiet lagoon, excellent for *Melongena melongena* (Linné, 1758) among the mangrove roots, we thought, and located a few small but mature specimens. Then, in a shallow bay, in very black mud covered by less than a foot of water, we began finding *Murex chrysostoma* Sowerby, 1834. They were dwarfed, but a beautiful orange color with excellent siphonal canals.

Day Three, we were off to the windward side of the island where our diver told us the beach was covered solid with shells. This desert-like country made us feel more like we were driving across New Mexico than a tropical island. At La Restina Beach, known there as Seventeen Mile Beach, thousands, no, millions of shells covered the beach as far as we could see. *Tivela mactroides* (Born, 1778) and *Anadara brasiliensis* (Lamarck, 1819) by the tons, even an occasional *Pitar diene* (Linné, 1758), were piled high over every inch of the beach! Some were standing agape on the sand, while the tide brought live ones up with every surge. We found it interesting that many of the *Anadara* were worn at the umbos, some even worn completely through. Huge piles of *Tivela* and burn areas were evidence that the locals there had been collecting and cooking on Seventeen Mile Beach for many years.

Here on this small beach, we found *Eucrassatella antillarum* (Reeve, 1842). They were dead, and all seemed to have been attached to a type of sea plant from deep water. This was the only place we found *E. antillarum*, and they were not particularly plentiful, even here.

A wild trip to La Isleta occupied our last day of shelling. This deserted, rustic area on the south side of the peninsula seemed to be made up mostly of tons of crushed *Arca zebra* (Swainson, 1833), *Strombus alatus* Gmelin, 1791, melongenas and an occasional bit of sand. This small fishing village lay at the end of what might have been a Florida beach road. We soon had a dozen or so of the local fishermen bringing us shells and showing us where to collect murex, melongenas, tulips and chamas. We took 4 to 7 inch *Murex brevifrons* Lamarck, 1822 there, in nets off La Isleta. They were in 8-20 feet of water on a rocky mud bottom.

Along the sand flats we took hundreds of the True Spoon Shell, *Periploma inaequivalve* Shumaker, 1817. They were new dead and rather odiferous, deposited on the flats in great numbers by the tide.



Photos by Ted Kalafut

*Fusinus caboblanquensis* Weisbord, 1962. *Eucrassatella antillarum* (Reeve, 1842).

Beach collecting over broken arks and strombs was a new and different experience, but we were able to get a beautiful beach specimen of *Fusinus caboblanquensis* Weisbord, 1962, a few bright and beautiful *Strombus alatus* Gmelin, 1791, and several pen shells in shallow water along the beach among rocks, a fine finale to our stay on Margarita Island, Venezuela. "We shall return!"

### OTHER SHELLS COLLECTED AT MARGARITA ISLAND:

*Amusium laurenti*, *Amusium papyraceum*, *Ancilla tankervillei*, *Anomalocardia brasiliensis*, *Antillophos oxyglyptus*, *Astraea brevispina*, *Astraea caelata*, *Bulla striata*, *Carditamera gracilis*, *Cassis madagascariensis*, *Cerithium atratum*, *Chama macerophylla*, *Charonia tritonis variegata*, *Codakia orbiculata*, *Columbella mercatoria*, *Conus puncticulata*, *Conus regius*, *Cymatium nicobaricum*, *Cymatium pileare*, *Cymatium tranquebaricum*, *Donax denticulatus*, *Lithophaga aristata*, *Lyropecten nodosus*, *Marginella interruptolineata*, *Marginella marginata*.

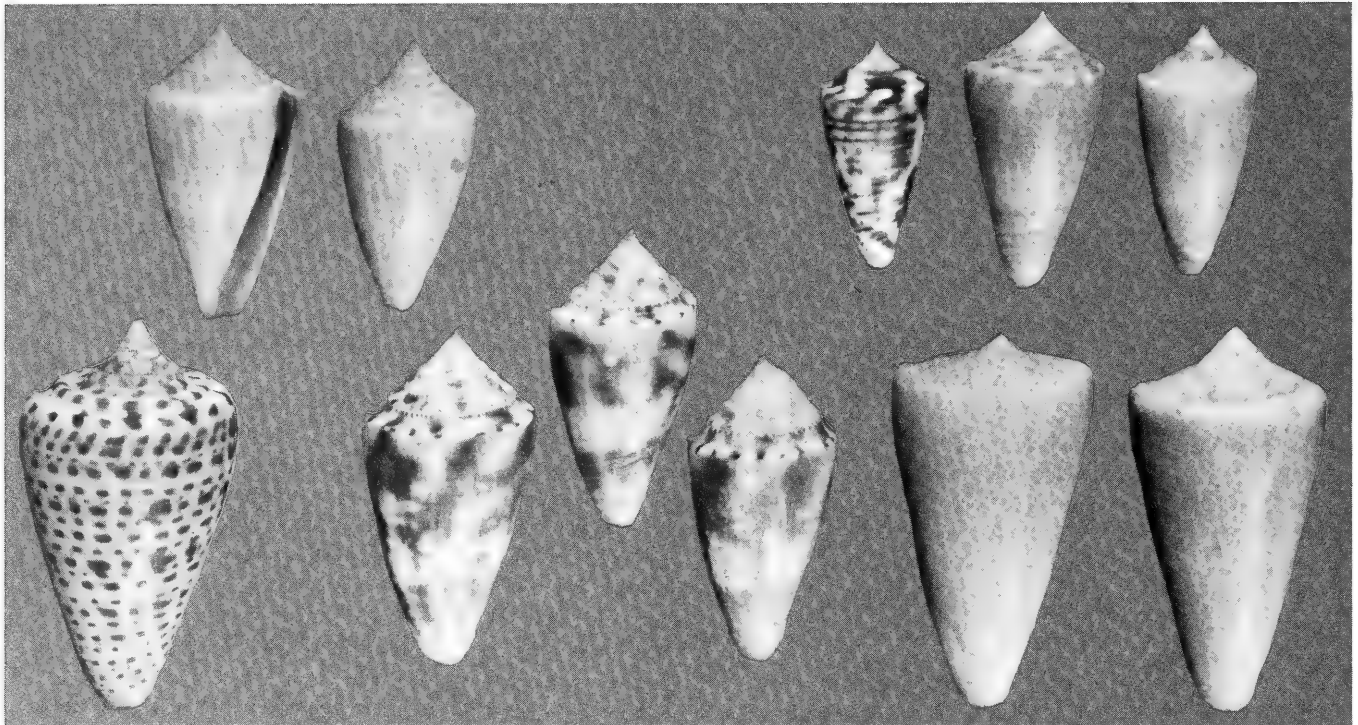
*Marginella obesa*, *Marginella prunum*, *Melampus coffeus*, *Melongena melongena*, *Murex margaritensis*, *Natica canrena*, *Natica livida*, *Oliva caribaeensis*, *Oliva reticularis*, *Nerita fulgurans*, *Pecten ziczac*, *Phalium granulatum*, *Pinctada imbricata*, *Planaxis nucleus*, *Polinices lacteus*, *Pteria colymbus*, *Purpura patula*, *Solen obliquus*, *Tellina punicea*, *Thais haemostoma floridana*, *Tonna galea*, *Tonna maculosa*, *Trachycardium muricatum*, *Trivia pediculus*, *Turbo castanea*.

### Marine Labs to Meet

La Parguera, Puerto Rico is to be the site of the 22nd Meeting of the Association of Marine Laboratories of the Caribbean. The Department of Marine Sciences, University of Puerto Rico will host the event, June 5-8, 1989. For information, contact Dr. Manuel L. Hernandez Avila, President AMLC, Dept. Marine Sciences, Box 5000, University of Puerto Rico, Mayaguez, PR 00709-5000.

The Association publishes a Proceedings, including abstracts of contributed papers, for each meeting, and two newsletters a year. Individual membership is \$5 per year. Dues may be sent to Dr. Lucy Bunkley-Williams at the above address.





\*A PECK OF PICKLES REEF CONES: Upper Left: *Conus caribbaeus* Clench, 1942; Upper right: *Conus flavescens* Sowerby, 1834; Lower left: *Conus spurius atlanticus* Clench, 1942; Center: *Conus mindanus* Hwass, 1792; Lower right: *Conus daucus* Hwass, 1792.

## EXPLORING PICKLES REEF

by Kevan Sunderland

The best collecting grounds for tropical mollusks in the continental U.S. has to be, without doubt, Southeast Florida. Along the southeast coast, you have a chance of finding most of the common Caribbean species and many of the rarer ones. If you dive off Miami, Fort Lauderdale or the Palm Beaches, there's fine collecting for reef species in 60 feet or so of water — on man-made rock piles, from sewer pipes that were buried, and around fill dredged from inlets and channels.

But travel south to the Florida Keys, and you'll find that collecting improves dramatically, that many of the tropical species are found in generally shallower water. Shells coming from the Palm Beaches in 60 feet or more of water are common here in 2-20 feet because of improved habitat, more corals, and better water quality and clarity. So get your maps out and let's do some collecting in the Upper Florida Keys.

The Florida Keys extend from Key Biscayne off Miami in a broken chain of islands to the Dry Tortugas, sixty miles south of Key West. My favorite area extends from the southern end of Key Largo in the area of Pickles Reef, south about twelve miles to Alligator Reef, but the Pickles area itself is the best of the stretch.

A word of warning about this area: when collecting Pickles Reef, you must remember that 1.5 miles to the north is Molasses Reef, the south boundary line for John Pennekamp Coral Reef State Park. This boundary line extends west to the mainland of Key Largo, six miles away. There is no collecting of any kind allowed in Pennekamp, but Pickles Reef is legal and well outside the park boundary.

Pickles Reef is a typical Florida Keys Reef. What you see here will be true of reefs all along the Keys. As you approach from the land-

ward side, you cross a wide area of channel which is a mix of sand and grass habitats ranging in depth from 15-25 feet. As you approach the inshore portion of the reef, you encounter shallower water that is predominantly turtle grass. As you go closer to the reef itself, you first begin to see small rocks in the grass, then larger coral rubble scattered in the wash area behind the reef. All this rubble is brought here by the cyclonic storms that have dislodged the giant boulder corals, soft gorgonian corals and elkhorn corals from the "reef flat" or top of the reef, and the deeper reef face.

Nearly to the reef, you come upon a habitat where the rubble is all loose and turnable; then the bottom turns upward and you move from 10 feet of water to as little as 3.5 feet at the top of the reef flat. Here the reef is covered with slabs of dead and living boulder corals, along with living elkhorn and staghorn corals. Here the ocean swells are strongest and the bottom is covered with soft corals.

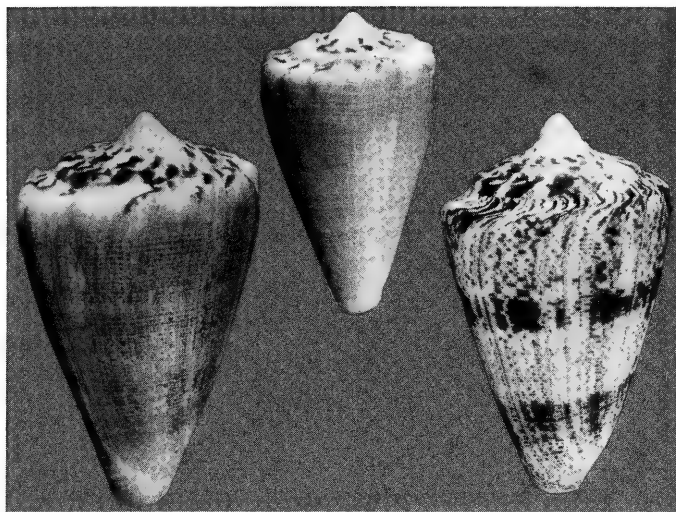
Moving further, you find the bottom dropping again, you start picking up a slight current, and as you find the water deepening to 10, 20, then 30 feet, you begin to see coral mountains and sand valleys, the "spur and groove" section of the reef. On Pickles, once you get past 60 feet, the corals begin to disappear and the bottom becomes flat, hard coral and then sand.

Well, that's the reef! But how do you collect this large expanse? Only experience and knowing the habitats will make your trip a success! Let's break the collecting down into regions, starting with the backwash, and working toward the reef and beyond.

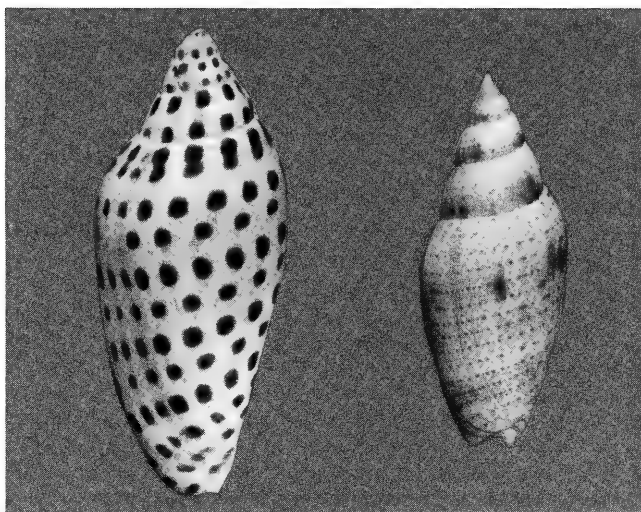
### BACKWASHES

The backwashes in the Keys can be very productive, especially at Pickles Reef. In these areas, there are giant sand pockets, some as

\*All photos are by the author and are life sized.



Two varieties of *Conus regius* Gmelin, 1791 (Below), and *Conus regius* form *citrinus* Gmelin, 1791 (Center) from Pickles Reef.



PICKLES REEF TREASURES: *Scaphella junonia* (Lamarck, 1804), and *Mitra florida* Gould, 1856.

large as a half-mile across. Here, most of the Caribbean species of *Cassia* can be found. On the edges of the sand areas, where turtle grass and sand come together, often there is a one to three foot wall; here, along the wall and at the edge of the grass, you can find live *Conus daucus* Hwass, 1792. In the Keys, these are rarely found directly on the reef. *Turbo canaliculatus* Hermann, 1781 is common in these areas, but most are dead, emptied by an octopus.

If you are an observant person who gets into the habit of looking for octopus dens, you can find them a gold mine. To spot an octopus den, watch for a pile of dead and opened bivalves at the entrance to a hole. These piles of empty bivalves "on the half shell" are your welcome mat. It is not uncommon to find *Mitra florida* Gould, 1856, and a host of other species as well, eaten and the shells cleaned.

As you move toward the reef, you swim over turtle grass, continuing to look closely for *Xenophora* and the many other species that live there, watching not for color but for shape, because they will be expertly camouflaged. Swimming forward, you will begin to find gorgonian corals, still alive but torn off the reefs by storms. By turning them over, you will find *Cyphoma mcgintyi* Pilsbry, 1939, *Cyphoma signatum* Pilsbry and McGinty, 1939, and *Cyphoma gibbosum* (Linné, 1758) living on the sea fans. Also under the fans, other species of shells that are mostly hermit-crabbed can be found hiding.

In sand patches, *Conus flavescens* Sowerby, 1834, *C. verrucosus* Hwass, 1792, *Mitra florida* and *Turbo canaliculatus* can be found alive, buried one to eight inches deep. Look in coarse rubble, not in the sugar (fine-grained) sand, because they won't be there. You might be one of the lucky collectors who find live Lion's Paws, *Lyropecten nodosa* (Linné, 1758), or maybe *Scaphella junonia* (Lamarck, 1803), shorter and stockier than those that come from off Key West.

As you move even closer to the reef, the rubble increases and each pile of rubble is like a city. Most have some type of gastropod living under them; often, several species will seek refuge there. This area is best for *Charonia variegata* (Lamarck, 1816). Still closer to the reef, you find even more rubble. Here, many of the common reef cones — *Conus regius* (Gmelin, 1791), *C. mus* Hwass, 1792, and others, can be found.

#### REEF FLAT

The best and easiest collecting is on the edge of the area where the rubble becomes heavy and continues to the top of the reef flat. Dig down in the dead rubble as far as you can, looking carefully as you go. You will notice that cones are under the top rocks, and as you go further, *Mitra nodulosa* (Gmelin, 1791), *Mitra barbadensis* (Gmelin, 1791) and *Mitra pallida* Nowell-Usticke, 1959 show up.

Also, this is the area where the *Bursa* live, along with many small species.

When you finish, turn the rocks back over and place them the way you found them. Why? Because if you don't, the habitat is destroyed. Don't turn over live coral, because it is illegal, and because you'll be destroying a beautiful resource. Remember why you are diving in the first place.

As you move further onto the reef flat, the bottom is covered with large and small stinging corals, with small *Coralliophila* and *Astraea* living among them.

The few turnable rocks have many species around them. Look carefully for small shells hidden in cracks. Also watch out for eels and urchins. They're there, and dangerous, but it's worth it, you'll find. In rock areas with sand underneath, always brush the sand, or you'll miss out. Many species make this area home, including *Cypraecassis testiculus* (Linné, 1758).

#### SPUR AND GROOVE REEF

If you look under the rocks in the sand fingers, you can find all the common reef species. As you swim through, look under the ledges along the wall for species that have died and have fallen through the reef into the sand. It is possible to find *Vexillum histrio* Reeve, 1844 and many others this way. This is also the place to look for many species of poorly-understood micro-gastropods.

As you swim into deeper water, 60-70 feet, the reef plays out to hard-pan and a low-profile reef. This area is rich in *Spondylus americanus* Hermann, 1781. You'll see them close their shells as you approach. If you turn your head, they will disappear because of their heavy camouflage. Then, as you move further off the reef, the sand increases, the bottom slopes deeper, and it's time to turn back, collecting bag full of a variety of species.

I hope this has wet your whistle and has gotten you interested in an incredible area. It is diverse and complex, to say the least! Mostly, though, it is full of secret habitats that only a keen eye and years of looking will show you. Think of it as going to a big city to find someone when you have only his name and no address. But the more collecting you do and the more experience you gain, the better you will get!

#### HELP!

Any suggestions how to dispose 50 varieties of Cowries, 60 cones, 150 other univalves collected live in North Celebes? Write Keith Stephenson, 137 East 22nd, Loveland, CO 80538.

## BELOW CAPRICORN

by F.R.E. Davies

Early February is an excellent time to head south of Capricorn on a three month volunteer work project. There are weekends and long, warm summer evenings to pass as one wishes.

At Montevideo, a small coterie welcomed me, and in a few minutes I was on my way to the world-famous resort town, Punta del Este, where I spent the long weekend as the guest of my client. "East Point" occupies a long finger of "whaleback" rock jutting south into the Atlantic, perhaps four km. long and about four blocks wide. From a distance, the town is impressive: high-rising apartment buildings line both shores, and a fine business street runs between.

Of course, I made a bee-line for the beaches, but quickly discovered that shells are not a major attraction in this area. Although the area is considered "open Atlantic," the major determining factor is the fresh water from the Rio de la Plata, which modifies the tidal movements and makes the water brackish. So I went fishing with my host and two of his friends. We motored about three km. into the channel and, using well-weighted lines, fished for Corvina, a bottom feeder weighing up to three kg, with firm, white, tasty flesh.

### WARM WELCOME

I had written in advance to the secretary of the "Malacological Society of Uruguay," and had squeezed about fifty Canadian shells of ten species into my overloaded baggage. Having no idea of the size or degree of activity of the club, I was delighted to find that Sr. Jorge Pita had left his telephone number with my agent. On my first Saturday in Montevideo, Pita came to my apartment with shells and a gift of the government-published book, *La Fauna de las Costas Uruguay del Este (Invertebrados)* (1960) by Luis P. Barattini (now deceased) and Elias H. Ureta (very much alive!). About two thirds of this well-illustrated book is devoted to molluscs, and most entries are crisp, clear and complete. Pita and I spent the next Saturday afternoon at the home of Jorge Broggi, a successful accountant, who has a very large collection, with most or all of the marine shells to be found off the coast of Uruguay and adjacent areas of Brazil and Argentina. He is widely travelled, so his collection contains many fine world-wide specimens as well. He also collects land and fresh-water molluscs. Before separating that evening, we arranged to go fossiling on the following Saturday.

Let's digress for a bit and look at the map. The main drainage flow is the Paraguay-Parana and Uruguay River systems. These rivers bring down an immense volume of water, and, where they unite, the south-flowing water turns 90° to the east to form the Rio de la Plata Estuary. The current on the outside of the bend runs much faster than the inside, explaining why Uruguay has all the sand and Argentina has all the mud. These Uruguayan beaches, running in a chain from Montevideo to the open Atlantic are something to behold! Although there are beaches of some kind along every coastline in the world, I have never seen anything to equal Uruguay's.

14,000 years ago, the Estuary was a gulf, well within the established marine beaches. But the river must have increased tremendously in volume, because it has since pushed the salt water out to sea. These ancient beaches are a goldmine of recent fossils, which has been discovered by the construction industry, which loves this readily available material, so nicely pre-sorted from fine sand to medium-fine gravel.

On the first Saturday in March, two cars of collectors gathered at the sandpit. It was a novel experience for me to pick out fossilized specimens which were identical to those found only 100-200 km. east on the present day beaches. Many still contained remnants of their chitinous matrix, and a few retained traces of original color.

On the following Saturday, Omar E. Sicardo, the club librarian, picked me up and took me to see his collection. I must mention here that the streets of Montevideo are jammed with cars of 1920's and



1930's vintage. As these were my boyhood years, I thought I could identify most pre-war cars on sight, but here we escaped collisions with many ancient models that I had never encountered before. Of course, all their innards had been replaced, except for Sr. Sicardo's — I think it contained a few Model T Ford driving belts! Back to shells! Sicardo's display was smaller than others, but very artistically displayed, and the specimens I saw were of gem quality. I was very impressed.

### SHELL CLUBS IN URUGUAY

Shell clubs in Uruguay are a bit different. I noticed in both Uruguay and Chile that the positions of both Secretary-Treasurer and Librarian are occupied by older, retired members on a sort of premanent basis, creating stability in the clubs that's hard to beat. The club year in the Southern Hemisphere runs from March (fall) to December (summer). The Uruguay club meets twice monthly.

The first meeting I attended was a real panic! Following the business meeting, which I understood reasonably well — the Uruguayan language is pure Buenos Aires Spanish, and I am not a good linguist — there came a discussion. It started off low-pitched but rapidly increased in intensity and volume until evrybody seemed to be shouting at once. I envisioned a riot, but after a while it quieted down and the meeting closed. My friends told me that it was just an ordinary discussion between Latinos, this one over whether they should resume publication of their semiannual club journal. At each of the four or five meetings I attended, there was a well-prepared speaker on sub-



An international gathering of conchologists, La Coronilla, Uruguay: From left, Jorge Broggi, Ted Davies, the Broggi children, Dr. Gatti, Marcel Verhaege from Belgium.

*Ted Davies is a retired organic chemist from British Columbia: 208-4001 Mt. Seymour Pkwy., N. Vancouver, B.C., Canada V7G 1C.*

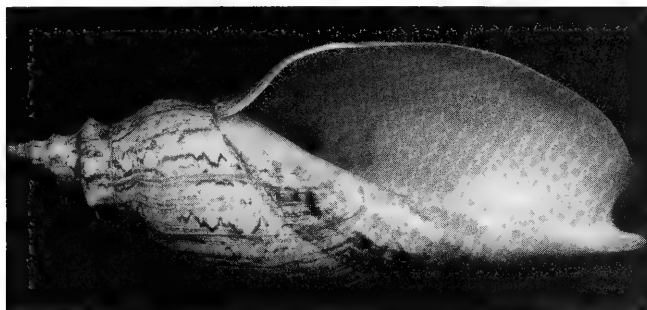


Photo by John Timmerman

Uruguayan Volutes: *Adelomelon beckii* (Broderip, 1836), 390mm. Trawled at 30-40m. off Paloma, Dept. Rocha, Uruguay.

jects ranging from SCUBA diving to definitive talks on a single species.

In Uruguay, "Holy Week" is interpreted literally — the whole country shuts down for ten days. Sr. Broggi planned to take his family with some shelling friends on a three day trip to the north east corner of Uruguay. We would prowl the beaches at La Coronilla and visit the nearby Santa Theresa National Park.

The highlight of this trip was an opportunity to get shells from a man whose hobby is SCUBA diving off the very southern coast of Brazil. As the only member of our party who was buying, I could pick the best specimens before they were shipped to dealers. I had to restrict my selection because of the weight-volume problems which beset a lone traveller whose baggage priority must be technical books and papers.

#### CANELONES

On my last Saturday in Uruguay, we drove to Canelones, immediately north of Montevideo, to see Dr. Gatti's collection. A retired medical practitioner, Gatti is now eighty. Soon after retirement, accompanied by Jorge Broggi, he made a world tour, with the object of "rounding out his collection," which now occupies three rooms of his home. The first is for display, while the others are lined with filled cabinets. This magnificent collection contains gem specimens of every marine mollusc found in Uruguayan waters, along with a vast number of foreign shells. Not only is this the largest private collection I have ever visited, but it is also the best — in a full afternoon, I did not see a single shell that was below gem quality. You name the shell and Gatti will show you at least two perfect specimens . . . *Conus bengalensis*, *C. milneedwardsi*, *C. cervus*, *Cypraea broderipii*, *C. leucodon*, etc. . . .



Photo by John Timmerman

Uruguayan Volutes: *Zidona dufresnei* (Donovan, 1823), 205mm. In fishing nets, Isla de Lobos, Uruguay.

Driving south, back to Montevideo, that night, we passed several long stretches of road with no reflected glow of civilization in the clear sky. Many of the brightest southern constellations were on display — a fitting way to end a day of beautiful things.

Watch for Part II of Ted Davies' "Below Capricorn" in a future issue of *American Conchologist*.

## CONTEMPORARY CONCHOLOGY

by Walter Sage, AMNH

Slit shells of the primitive gastropod family Pleurotomariidae have long fascinated collectors. These snails have an extensive fossil record, and were believed to be extinct until the first living species was discovered in Caribbean waters in the mid-1800's. Since then, increasing exploration of ocean depths has brought to our knowledge two dozen additional species and subspecies from deeper waters throughout the world.

The August 1988 issue of *The Nautilus* contains the description of the twelfth living western Atlantic form, *Perotrochus charlestonensis* Askew, 1988, known from a single dead-collected specimen taken in 1982 by the Johnson-Sea Link-I submersible from 213 meters deep, 90 nautical miles east of Charleston, South Carolina. The shell of the holotype measures 87.4mm in maximum diameter and is compared to the western Pacific *P. africanus* (Tomlin, 1948) and the western *P. midas* Bayer, 1966 and *P. pyramus* Bayer, 1967, from which three it differs in shell characteristics and depth of habitat. The type locality is an area of very rugged terrain, consisting of steep, large hills and valleys, that can be collected only by the use of submersibles. The warmer waters of the Gulf Stream have resulted in abundant marine life, including the gastropods *Perotrochus amabilis* (Bayer, 1963), *Calliostoma sayana* (Dall, 1889), *Sthenorytis amabilis* (Fischer & Bernardi, 1857), *Aurinia gouldiana* (Dall, 1887), and *Pteryonotus phaneus* (Dall, 1889).

A companion article by Harasewych, Pomponi, and Askew provides data on the feeding habits and diet of *P. amabilis* and *P. midas*. Fifty-six specimens of *P. amabilis* were collected by submersible in 1987 from the locality of *P. charlestonensis*. An examination of the gut contents showed that this species feeds on sponges, diatoms and foraminifera. *P. midas* was observed by submersible in 1987 on 16 occasions living in 670-853 meters in the northern and central Bahamas and was seen feeding on sponges. Examination of dissected specimens showed this species to be primarily a sponge feeder, with minor components of its diet being foraminifera and ostracodes. It is speculated that the change from the generally accepted herbivorous diet of most archaeogastropods to this carnivorous diet accompanied the move of pleurotomariids from shallow water reefs to their current deep water habitat.

## WORLD SIZE RECORDS: CORRECTIONS

(Continued from June, 1988)

Genera	Species
Cymatium	amectoideum; species changed to amictum amictoideum
"	ranzoni; change spelling to ranzani
"	trigrinum; change spelling to tigrinum
Cypraea	arabacula; owner is Swoboda, not Swaboda
"	comptoni; change spelling to comptonii
"	kuroharai; species changed to schildersorum kuroharai
"	limicina; change spelling to limacina
Dentalium	pretiosum; delete — under 4.00cm
"	vernedi; owner is Larry Strange
Donax	gouldi; delete — under 4.00cm
Epitonium	indianorum; delete z — under 4.00cm
"	tinctum; delete — under 4.00cm
"	turbinum; owner is Larry Strange
Fusinus	sandwichensis; change spelling to sandvichensis
"	tuberculatus is a syn. of colus
Haliotis	semiplicata; owner is Larry Strange
Jenniferia	pustulata; delete — under 4.00cm
Macrocallista	aurantiaca; delete! This is Megapitara aurantiaca already listed.
Malleus	albus; owner is Larry Strange
Mitra	nivea; locality is Guadalcanal
Murex	damicornus; owner deceased — new owner not known
"	hamatus; delete — under 4.00cm
"	miyokoe; species changed to loebbeckei miyokoe
"	oxycantha; spelling changed to oxaycantha
"	sauliae; change spelling to saulii
"	saxatilis; species changed to rosarium (saxatilis is a syn.)



## THE SHELL SHOW IN AMERICA

by Don Dan

The night before a shell show opens is a lot like Christmas Eve; all is expectancy and excitement. Show entrants are tense, anxious, filling in the time and dispelling nervous energy by polishing glass, straightening labels, making minor adjustments in a shell's position or the angle of a backboard. Show officials, tense also, as well as tired and harried, rush about answering requests and ironing out problems with table space, lighting, or security.

And what a contrast the next day! Again, the comparison to Christmas Day is inescapable . . . ribbons on cases, pride on the faces of exhibitors, and inevitably some disappointment here and there, the noise and confusion of crowds of laughing, talking people having a reunion, avid interest on viewers faces . . . what an exciting time!

American Shell Shows are places where people are engaged in the refined art of formally showing off their hobby. They are places where the public can learn about mollusks. They are glittering places, where exhibits of fabulous and beautiful rarities are given space alongside displays devoted wholly to the lowly Whelk or Horse Conch . . . and the Whelk just might carry the day, win the blue ribbon, the coveted COA or duPont trophy. Shell shows are places where display techniques are becoming a high art form, where new cases may win as much attention as the shells inside. And they are places where the collector, novice and experienced conchologist alike, can expand his understanding of his hobby and enrich his interest as well as his collection. They are the very heart of shell collecting.

By no means the least attraction at shell shows is the shell dealers' enclave. The presence of dealers at shell shows has become such an important ingredient to a successful show that nearly all major shows now have made provisions for a sales area. The current crop of dealers at the shows offer some dazzling displays of the highest quality shells. The multiple dealer forum forces the prices to be very competitive, making comparison shopping both possible and worthwhile and making the shell show the place to augment one's collection.

There is probably no larger group activity for shell collectors than the shell show. An estimated 40,000 people attend shell shows every year in the United States. There are currently 23 open competitive shows being run in this country, seventeen of these on an annual basis.

The greatest concentration of shows is found in Florida; the state typically boasts ten shows a year. The flurry of Florida show activities is thickest from the third weekend of January through the first weekend in March; during this time there is at least one shell show every weekend. The large population of retired people in Florida who have time and energy to devote to the hobby has greatly contributed to the vibrancy of these shows. The shows are great places to meet with other collectors who share one's interest.

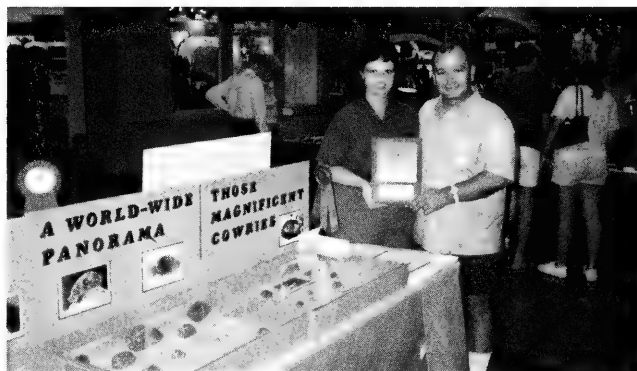
As the weather warms up, shell shows begin to take place up north. The Georgia show, the St. Louis show, and the Long Island show operate during April and May. Other East Coast and Midwestern shows typically run during summer and fall, when we can expect an average of one show a month. Many of these shows take place on alternating years or on an occasional basis.

With the exception of Oregon, large, openly competitive shows have not been seen in the Western U.S. recently. California, saw its last show in Santa Barbara in 1985. The Hawaiian show returned this year, after several years' hiatus.

Exceptions aside, the Southern and Midwestern shows have some of the highest quality exhibitions, reflecting the seriousness many collectors in those regions take to their hobby and the admirable culture of wanting to share with the public their personal interests. These exhibits are truly feasts for the eye and education for the mind.

The following show-by-show review is based primarily on my personal observations at the various American shows that I have regularly attended for the past six years, or on correspondence with show sponsors of those shows I have not attended.

### COA TROPHY WINNER



COA Secretary Dave Green and his wife Lucille with their COA Trophy for "Those Magnificent Cowries — A Worldwide Panorama," at the Gulf Coast Shell Show, Panama City, Florida.

### THE SHOWS OF THE WINTER-SPRING SEASON

#### NAPLES SHELL SHOW

Location: The Naples Depot, Naples, FL  
Average Scientific Display: 300 feet  
Average Attendance: 2,000  
Admission: \$1.00

The 1988 Winter/Spring season opened with an exciting new format for Naples. Moving from a shopping mall to the renovated train station removed the negative stigma of mall shows disliked by many Floridians. The new middle-of-January date enables Naples to lay claim as first show of the Winter season. Also, dealers were added, following the mainstream of American shows. First show of the year has the potential of drawing new displays as well as attracting serious collectors who want to have the first pick of the dealers' stock.

Naples' 30th anniversary show in 1989 expects very large attendance, so the relatively small hall makes it a tightly squeezed but very cozy show. The generally relaxed atmosphere reflects the overall ambience of this retirement/tourist city of Southern Florida.

#### ASTRONAUT TRAIL SHELL SHOW

Location: The Melbourne Auditorium, Melbourne, FL  
Average Scientific Display: 400 feet  
Average Attendance: 2,500  
Admission: \$1.50 (50 cents off coupon in local paper)

Celebrating its tenth anniversary in 1989, the Astronaut Trail Shell Show has finally arrived! Over these years, it has grown to be one of the top shows. The large, well-located exhibition hall, with its ample parking, allows for a full complement of shell dealers and unrestricted scientific and artistic displays. Above all, it has a vibrant sponsoring shell club which also happens to be the home club of our renowned R. Tucker and Cecilia Abbott.

This innovative show was the first to regularly feature shell lectures throughout the show. The members, with their well-stocked hospitality room and Saturday night party at a member's home, strive to make all visitors feel welcome. The judges' banquet usually features a regional theme — Polynesian Fantasy, Fiesta de la Concha, etc. The 1989 theme naturally will be "Birthday Bash."

For those visitors playing tourist roles, the Cape Canaveral space complex with all its attractions is close by, to double their fun.

#### GREATER MIAMI SHELL SHOW

Location: The North Miami Armory, N. Miami, FL  
Average Scientific Display: 400 feet  
Average Attendance: 1,200  
Admission: \$1.00

This show will continue its third season at the N. Miami Armory which has a spacious hall allowing for large displays and a full list

### 1989 WINTER & SPRING SHELL SHOWS AND MEETINGS

Jan. 13-15	<b>Naples Show Show</b> , Naples, FL Bea Sweet, The Blue Mussel 478 5th Ave. S., Naples, FL 33940 .....(813) 262-4814
Jan. 20-22	<b>Astronaut Trail Shell Show</b> , Melbourne, FL Jim & Bobbie Cordy, 385 Needle Blvd. Merritt Is., FL 32953 .....(407) 452-5736
Jan. 27-29	<b>Greater Miami Shell Show</b> , N. Miami, FL Gayle Motes, 7305 N.W. 59 Street Pamarac, FL 33321 .....(305) 726-5190
Feb. 3-5	<b>Broward Shell Show</b> , Pompano Beach, FL Wayne Harland, 2549 SE 15th Street Pompano Beach, FL 33062-7504 .....(305) 942-3950
Feb. 9-11	<b>Ft. Myers Festival of Shells</b> , Ft. Myers, FL Jean & Bill Hallstead, 1077 S. Yachtsman Drive Sanibel, FL 33957 .....(813) 472-9397
Feb. 17-19	<b>Sarasota Shell Show</b> , Sarasota, FL Vi Hertweck, 637 Sheridan Drive Venice, FL 34293 .....(813) 497-1501
Feb. 24-26	<b>St. Petersburg Shell Show</b> , Treasure Is., FL Bob Lipe, 440 75th Avenue St. Petersburg Beach, FL 33706 .....(813) 360-0586
Mar. 2-5	<b>Sanibel Shell Fair</b> , Sanibel, FL Ralph Moore, Sanibel-Captiva Shell club P.O. Box 355, Sanibel, FL 33957 .....(813) 472-2511
Mar. 8-9	<b>Marco Is. Shell Club Show VIII</b> , Marco Is., FL Dolly Bergman, 58 N. Collier Blvd., Gulfview #1503 Marco Island, FL 33937 .....(813) 642-6595
Mar. 17-19	<b>Treasure Coast Shell Show</b> , Stuart, FL Ruth Wischmann, 5370 SE Ebbtide Ave. Stuart, FL 34997 .....(407) 288-6864
Apr. 7-9	<b>Greater Georgia Shell Show</b> , Atlanta, GA Bill & Bunny Fulton, 3878 Granger Drive Chamblee, GA 30341 .....(404) 451-3441
May 5-7	<b>Central Florida Shell Show</b> , Orlando, FL Marianne Cheeseman, 202 Cottonwood Drive Winter Springs, FL 32708 .....(407) 699-8729
June. 17-18	<b>VIII Salon International du Coquillage</b> , Lutry, Switzerland Dr. Ted W. Baer, 1602 La Croix Switzerland .....(021) 393771 or 207371
Jun. 19-24	<b>Conchologists of America Convention</b> , San Diego, CA Don Pisor, 10373 El Honcho San Diego, CA 92124 .....(619) 279-9342
Jun. 25-30	<b>American Malacological Union Annual Meeting</b> , Los Angeles, CA Dr. James H. McLean 900 Exposition Blvd. Los Angeles, CA 90007 .....(213) 744-3377

of specimen shell dealers. The sponsoring club has made great efforts to make its annual event a fun and sociable one. The show banquet draws good crowds. For \$12.00, one gets a sumptuous meal and an enjoyable evening.

Probably due to its relatively new location, off the main traffic area, attendance has been limited to serious shell collectors. So for those who want to avoid large crowds, this is an excellent show to attend.



Jay Sessoms' Volute display at Philadelphia.

### BROWARD SHELL SHOW

Location: Pompano Beach Recreation Center, Pompano Beach, FL  
Average Scientific Display: 600 feet

Average Attendance: 3,000

Admission: Free

Pompano Beach is a relatively quieter neighborhood of Ft. Lauderdale metropolitan area. This show consistently draws large attendance from the local shell-conscious population. Interest in shells ranges from very curious to very serious.

Southeastern Florida has a very large concentration of seasoned collectors, who congregate at this show every year. This is one of those very friendly and sociable shows, akin to a neighborhood bar, full of home grown familiarity. Yet the effective promotion draws many casual visitors as well. The ever-busy kitchen serves low cost lunches to exhibitors and dealers and at other times embraces small groups of shell buddies exchanging notes and tales.

### FT. MYERS FESTIVAL OF SHELLS

Location: Sheraton Hotel Harbor Place, Ft. Myers, FL

Average Scientific Display: 400 feet

Average Attendance: 1,200

Admission: \$2.00

Renamed for 1989, this very popular annual show went through a change-of-location "fall-off" in attendance. Traditional Friday-to-Sunday dates are now Thursday to Saturday to avoid conflict with the Sunday street festivities in the vicinity of the show. A Preview Party, in lieu of the traditional judges' dinner will be held immediately following judging at 6:00 p.m. on Wednesday, Feb. 8th. Other features include exchange exhibits with foreign clubs and a special Hawaiian exhibit.

The exhibition hall is luxurious. The spacious main hall will be supplemented by the reception area in 1989, increasing the floor space 25%. By effective promotion in 1989, the sponsoring club aim to at least double the attendance at this very classy show.

### SARASOTA SHELL SHOW

Location: The Exhibition Hall, Tamiami Trail, Sarasota, FL

Average Scientific Display: 600 feet

Average Attendance: 3,000

Admission: \$2.50 (50 cents off coupon in local papers)

Clearly, one of the largest of the Florida Winter shows, Sarasota has kept up its busy momentum all its 25 years. It draws large crowds every year from up and down the Florida West Coast and a few from the East. On the main traffic artery and with many resort hotels close by, this show attracts many tourists as well. Both the scientific and the artistic displays easily rank among the best. A very vibrant sponsoring club with many successful retired members contributes to the continuous success of this venerable show.

### ST. PETERSBURG SHELL SHOW

Location: The Treasure Is. Community Ctr., Treasure Is., FL

Average Scientific Display: 400 feet

Average Attendance: 1,800

Admission: \$2.00

The 42nd anniversary in 1989 promises to be a whopper for this annual show. Located in the midst of the beach communities, St. Pete depends a great deal on beach crowds. Although well located, the small hall is restrictive in space. But after two moves in recent years, the club has decided that this is a workable compromise. The quality of the exhibits, nevertheless, continues to be very high.

### SANIBEL SHELL FAIR

Location: The Sanibel Community Center, Sanibel Is., FL

Average Scientific Display: 450 feet

Average Attendance: 7,000

Admission: \$1.00

The granddaddy of them all, it started over 50 years ago when a group of beachcombers from the North gathered at the Island Inn to share their finds and swap notes. Today the four day show has

become a major community effort involving several civic organizations and of course, the Sanibel-Captiva Shell Club. The income from this event has helped to pay for the Community Building extension.

Sanibel boasts the largest display of shell arts of any American shell shows. Quality ranges from folksy to very professional. Unlike the other mainstream American shows, Sanibel has no dealers at the exhibition hall, although there are probably enough shell dealers on the island to satisfy the most voracious shell buyers.

The large crowds attracted by this huge show on a small island mean traffic delays, but one just adopts the island attitude and takes things in stride, enjoying the festive atmosphere.

#### MARCO ISLAND SHELL SHOW

Location: The Methodist Church  
Average Scientific Display: 100 feet  
Average Attendance: 2,000  
Admission: Free

In dramatic contrast with Sanibel, here is one of the smallest shell shows. The easygoing retirement community of Marco Island will be hosting its eighth annual show in 1989. The Marco Island show catches a few holdovers from the Sanibel Shell Fair, because they are held within three days of the each other. Otherwise, it is very much a local affair, with exhibits drawn from Southwestern Florida.

#### TREASURE COAST SHELL SHOW

Location: Langford Park Fieldhouse, Jensen Beach, FL  
Average Scientific Display: 400 feet  
Average Attendance: 1,000  
Admission: Free

Latest addition to the Florida shell show circuit, Treasure Coast held its first show in 1988 and was greatly encouraged by its success. Except for extending the show to a full three day affair, the 1989 event will follow the same format, still with no dealers as the limited space at the park fieldhouse simply does not allow for dealer booths. The sponsoring club hopes that larger space can be found for future shows.

#### CENTRAL FLORIDA SHELL SHOW

Location: The Orlando Science Center, Orlando, FL  
Average Scientific Display: 400 feet  
Average Attendance: 1,000  
Admission: \$4.00 (Including admission to the Museum)

This unique inland Florida show has gone through several changes in recent years. After the 1987 SHELLARAMA at Sea World, the show returned to the Science Center, a very modern interior for a very high quality exhibit. The many displays made the relatively roomy hall still cry out for more space.

This is another show that is doing many things to make visitors feel at home. A preview reception before the Thursday night dinner, the Friday night get-together and the Saturday night party make for a very social weekend.

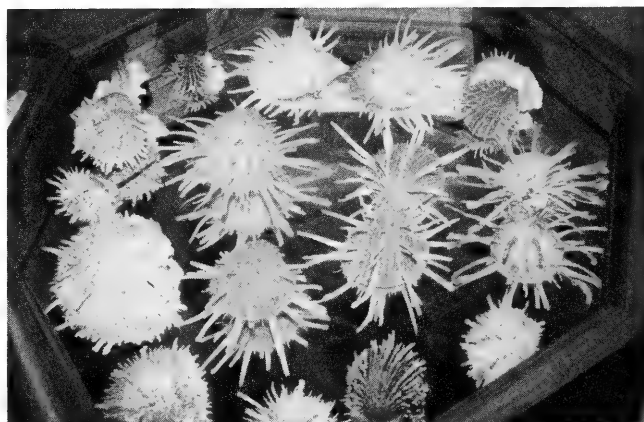
This show is yet to be discovered. With the addition of dealers beginning in 1988, it has all the major ingredients of an immensely successful show, especially good for vacationers who want also to take in Disney World and other amusement complexes in the Orlando area.

#### GREATER GEORGIA SHELL SHOW

Location: The Market Square Mall, Atlanta, GA  
Average Scientific Display: 350 feet  
Average Attendance: Average mall crowd  
Admission: Free

Flowering dogwood and azaleas greet visitors to this annual Spring show in Atlanta, the perfect backdrop for gathering of friendly shell collectors from all over the Southeastern U.S. This show has changed location several times in the past but seems finally to have found a home at the newly renovated Market Square Mall.

This perfect mix of serious conchology and serious partying, ends with the ever popular Sunday brunch at Horatio and Doris Buck's home where at last, all the major awards are announced. This is one of the rare shows which keep the major awards secret until the last



Photos by John Pearson

#### A *Spondylus* display by John Pearson from the non-competitive Philadelphia Shell Show held in October, 1988.

day of the show. What a way to keep petty jealousies and disruptive emotions away from the show! A major focus here is to make it a fun and enjoyable event and many out of state visitors find it highly attractive.

#### ST. LOUIS SHELL SHOW

Location: The Mall at Westport Plaza, St. Louis, MO  
Average Scientific Display: 200 feet  
Average Attendance: Below average mall crowd  
Admission: Free

The longest running competitive shell show in the heartland of America, St. Louis is little known outside the Midwest. It was never aggressively promoted. But with the courageous move out of the Jewish Community Center and the addition of dealers in 1988, things are beginning to change.

Held once every two years, St. Louis is the only Midwest Spring show. Typical visitors are member collectors from the shell clubs in Illinois, Indiana, Kansas and Kentucky and Ohio. This show seems to be in a state of transition to an even greater regional participation; the potential is waiting to be realized.

#### LONG ISLAND SHELL SHOW

Location: Freeport Recreation Center, Freeport, Long Island, NY  
Average Scientific Display: 360 feet  
Average Attendance: 1,000  
Admission: \$2.00

Just as St. Louis is the only competitive Spring show for the Midwest, Long Island is the only Spring show in the densely populated Northeast. This occasional show was held in 1988, 1984 and 1982. Hopefully, we'll see another in 1990. The two-day show in 1988 was another "leap frog" improvement over earlier shows: it featured good attendance by New York area collectors and high exhibit quality. Due to the largely working population (vs. retired people in Florida), shells play a less dominant role among the collectors but there was no lack of enthusiasm. So far, there has not been much participation by the numerous shell clubs along the Eastern Seaboard at this show. Nevertheless, the potential is there for greater support to make this show an even more vibrant affair.

*Watch for Don's treatment of the Summer and Autumn show season in the June issue of American Conchologist.*

#### SLUGGED!

California Governor George Deukmejian vetoed a bill to designate the Banana Slug as California's official state mollusk. A children's group, the Redwood Campfire Kids, introduced the bill to honor the slug. Since this noteworthy gastropod is bright yellow and about the size and shape of a banana, it wasn't clear what Gov. Deukmejian was opposed to, mollusks or bananas. Try him on abalones, Kids!



### A Record Size *Conus excelsus*?

This beautiful representation of a *Conus excelsus* was meticulously carved out of wood and painted by a very fine but nameless artist in Deception Point (Punta Engano), Mactan, Cebu, Philippines, but the intent was definitely not to deceive as this fine piece of craftsmanship is 10½ inches long (over 26cm!) and Wagner & Abbott would never buy that!

Contributed by  
Charles Glass & Robert Foster  
The Abbey Specimen Shells  
Santa Barbara, CA

### Archives Department:

#### ATTENTION COA CHARTER AND LONG-TIME MEMBERS:

In trying to locate a full set of COA Bulletins/American Conchologists to deposit in the Library of Congress and the Smithsonian, our Custodians of the Back Issues, **Bernie and Phyl Pipher** turned up some interesting information.

According to Rich Goldberg, there was no #9. Instead, there were two #8's. So those of you who are hunting a COA Bulletin #9 will hunt in vain. To make matters worse, we've found only one #8, and have no idea whether it is the true or false one. Can anyone help us there?

### AMU-WSM 1989 TO MEET IN LOS ANGELES

The 55th annual meeting of the AMU and the 22nd annual meeting of the WSM will be a combined meeting, June 25-30, 1989, held in Los Angeles, California at the Davidson Conference Center of the University of Southern California. Facilities at the Los Angeles County Museum of Natural History will also be used for some of the scheduled events.

Two full days of symposia are planned: one, on Systematics and Evolution of Western North American Land Mollusks, convened by F. G. Hochberg and Barry Roth; and one on Pelagic Gastropods, convened by Roger Seapy. There will also be a shorter session on Scaphopod Biology convened by Ronald L. Shimek.

Auctions of specimen shells and books will be held by the WSM. Field trips for collecting marine, land and fossil mollusks will be arranged. For those of you who plan to attend the COA Convention in San Diego, June 18-22, this will be a wonderful opportunity to combine the two events into one grand vacation!

The further information contact AMU President-Elect Dr. James H. McLean, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, CA 90007 (213-744-3377), or WSM President-Elect Dr. Hans Bertsch, at the same address (213-372-4436).

If you'd like to know more about those molluscan egg capsules you find on the beach, send for Beatrice Winner's excellent and well-illustrated little book, **A Field Guide to Molluscan Spawn, Volume I**. It's only \$9.95 (prepaid) plus \$1.50 s/h in the U.S., or \$3.85 for overseas airmail. Write to E.B.M., P.O. Box 14923, North Palm Beach, FL 33408. Make checks payable to Beatrice Winner.

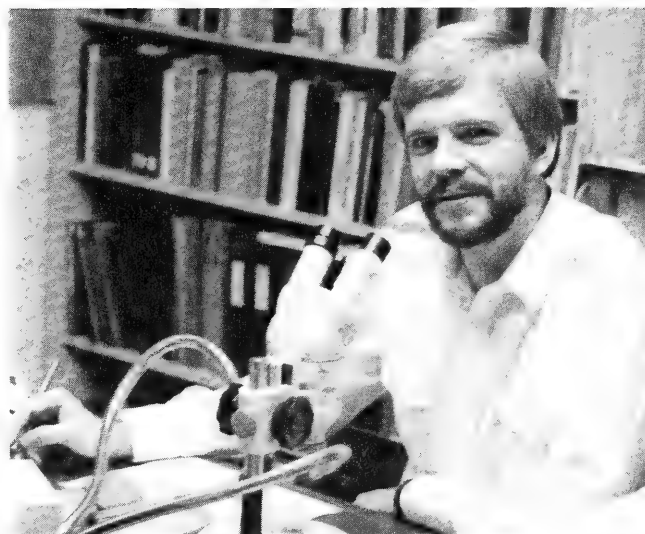
### WHAT'S NEW IN MOLLUSCAN RESEARCH?

by R. Tucker Abbott

#### Spain's Sheep Farming Going Wormy

Centuries ago, Italian kings conquered parts of Spain and set up a new occupation for the Spaniards — sheep raising and wool production. Now snails and slugs are threatening the health of these and other ruminants by the nematode worm disease they carry and spread. The lung worm of sheep (named *Muellerius* after our conchologist, O. F. Müller) is carried by the helioid land snails, *Monachus*, *Theba* and the escargot.

1988 research papers by five Spanish parasitologists using 1,200 specimens of the helioid snail, *Ceratomyx*, showed that the larvae of this minute worm flourish best in the summer and fall months. A similar research article, also in the **British Journal of Molluscan Studies**, vol. 54, pp. 35-42, reveals the discovery of an additional helioid snail, a carrier of worm-produced pneumonia in cows.



Dr. Rüdiger Bieler.

Photo by Mary Jane Arden

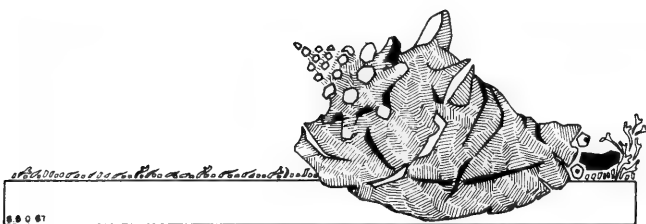
#### NEW MALACOLOGY HEAD AT DELAWARE

The Delaware Museum of Natural History announced recently that Rüdiger Bieler Ph.D. is the new Head of the Department of Malacology. Dr. Bieler will also serve as Head of the Curatorial & Research Division, and as Managing Editor for the Museum's journal, *Nemouria*.

A native of Hamburg, Germany, Dr. Bieler recently completed work on a postdoctoral fellowship at the Smithsonian Marine Station at Link Port, Fort Pierce, Florida. He is a specialist on the anatomy, taxonomy and biology of several families of marine gastropods (Architectonicidae, Mathildidae, Vermetidae.) Dr. Bieler is a past recipient of a COA grant towards his work on the Architectonicidae.

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## LIMERICK BARGAIN

by R. Tucker Abbott

In what must be one of the most humorous and delightful books of limerick verses to appear, Associate Professor R. S. Appeldoorn has, with the help of Bonnie Bower-Dennis, beautifully illustrated the life of the Queen (Pink) Conch, *Strombus gigas*. This attractive 50-page booklet, entitled **ON THE VERGE: Limericks on the Life and Times of the Queen Conch**, was produced by a Sea Grant at the University of Puerto Rico. The "verge," for you non-biologists, is the male copulatory organ, three of which may, on occasion, be carried by one male. Thirty-seven biological footnotes explain the life history of the conch. Copies, while they last, may be purchased for a mere \$2.00 (75 cents of which is a donation) from: Sea Grant Program, P.O. Box 5000, Mayaguez, Puerto Rico 00709-5000.

"When writing, my first point of view  
was to keep all the limericks true.  
And so it was done,  
but not without pun  
or an arcane sentence or two."

## FT. MYERS FESTIVAL OF SHELLS

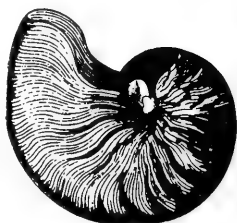
The Southwest Florida Conchologist Society has just finished hosting the greatest convention in COA's history. Their massive and combined efforts have greatly benefited our treasury, added many new members to our ranks, and given 1988 convention attendees happy experiences that will live on in our memories.

Now they're hard at work on still another project, their own Ft. Myers Festival of Shells. And it's our turn to help them out. To benefit their educational projects, they are holding a raffle of a table, a cabinet and a lamp, all filled with shells. The cabinet, the lamp and the table have already been pledged. But SWFCS still lacks the shells to fill them.

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## BOARDTALK . . .

From COA Treasurer **WALTER SAGE**: Membership renewals are coming in at a good rate, and we thank those who have responded to the early call for payment of dues for 1989. Sales of the items listed on the dues renewal notice have been brisk — be sure to get your orders in before the supply runs out. **IMPORTANT** — If you have a change of address, it is **IMPERATIVE** to let us know as soon as possible, and avoid delay in receiving an issue of our publication, *American Conchologist*.

Please make the following changes in the Officers and Committee Chairmen List as it appears on the cover of your COA Membership List:

President: **Alan Gittleman**, 4045 Central Lane, Granite City, IL 60240.

Vice President: **Peggy Williams**, P.O. Box 575, Tallevast, FL 32407-0575.

Secretary: **Dave Green**, 5853 Pitch Pine Drive, Orlando, FL 32811.

The new Executive Board Directors are:

Past President: **Don Young**, 11690 Parkview Lane, Seminole, FL 34642.

**June Huie**, 722 Finland, Grand Prairie, TX 75050.

**Herb Young**, 14450 Stone Avenue North, Seattle, WA 98133.

The new Grant Awards Chairman is **Dr. R. Tucker Abbott**, P.O. Box 2255, Melbourne, FL 32902-2255.

The new Nominating Committee Chairman is **Richard Goldberg**, P.O. Box 137, Fresh Meadow, NY 11365.

Parliamentarian is **Glen Deuel**, 8011 Camille Drive SE, Huntsville, AL 35802.

Other officers and chairmen remain the same.

Word has it that Connecticut conchologists are opting for the oyster, *Crassostrea virginica* (Gmelin, 1791), as Connecticut State Shell.

Advertising in *AMERICAN CONCHOLOGIST* is presented as a service to our membership, but does not automatically imply endorsement of the advertisers by *American Conchologist* staff or the Conchologists of America, Inc. Advertising space is available at the rate of \$105.00 for a half page, yearly rate (4X); \$380.00; quarter page, \$55.00, yearly rate: \$200.00; eighth page: \$35.00, yearly rate: \$115.00. Camera-ready copy **ONLY** will be accepted at this rate. There will be a \$10.00 charge for each halftone required. Copy may be changed for any issue. **Deadlines are as follows: #1 — Jan. 1; #2 — Apr. 1 — #3 — July 1; #4 — Oct. 1.** These deadlines will be strictly observed. Send advertising copy to the Editor, Lynn Scheu, 1222 Holsworth Lane, Louisville, KY 40222. All payments should be sent to COA Treasurer Walter Sage, P.O. Box 8105, Saddle Brook, NJ 07662.



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*An International Forum for the Study of Systematics, Ecology, and  
Biogeography of Worldwide Fossil Mollusks (ISSN 0897-2451)*

Published quarterly in Winter, Spring, Summer, and Fall. **Annual Subscription Rate (1988):** \$25 (Personal), \$35 (Institution). Subscribers outside the USA add \$5 for surface postage or \$10 for airmail delivery.

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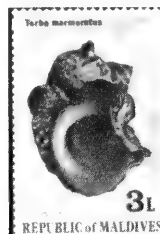
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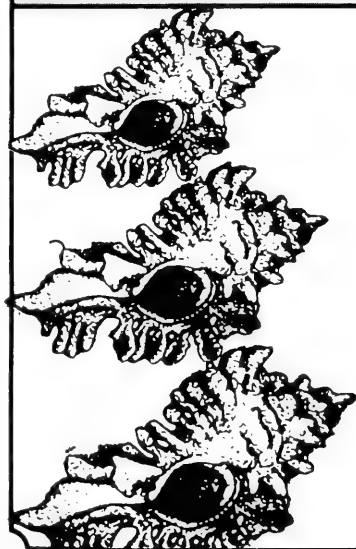
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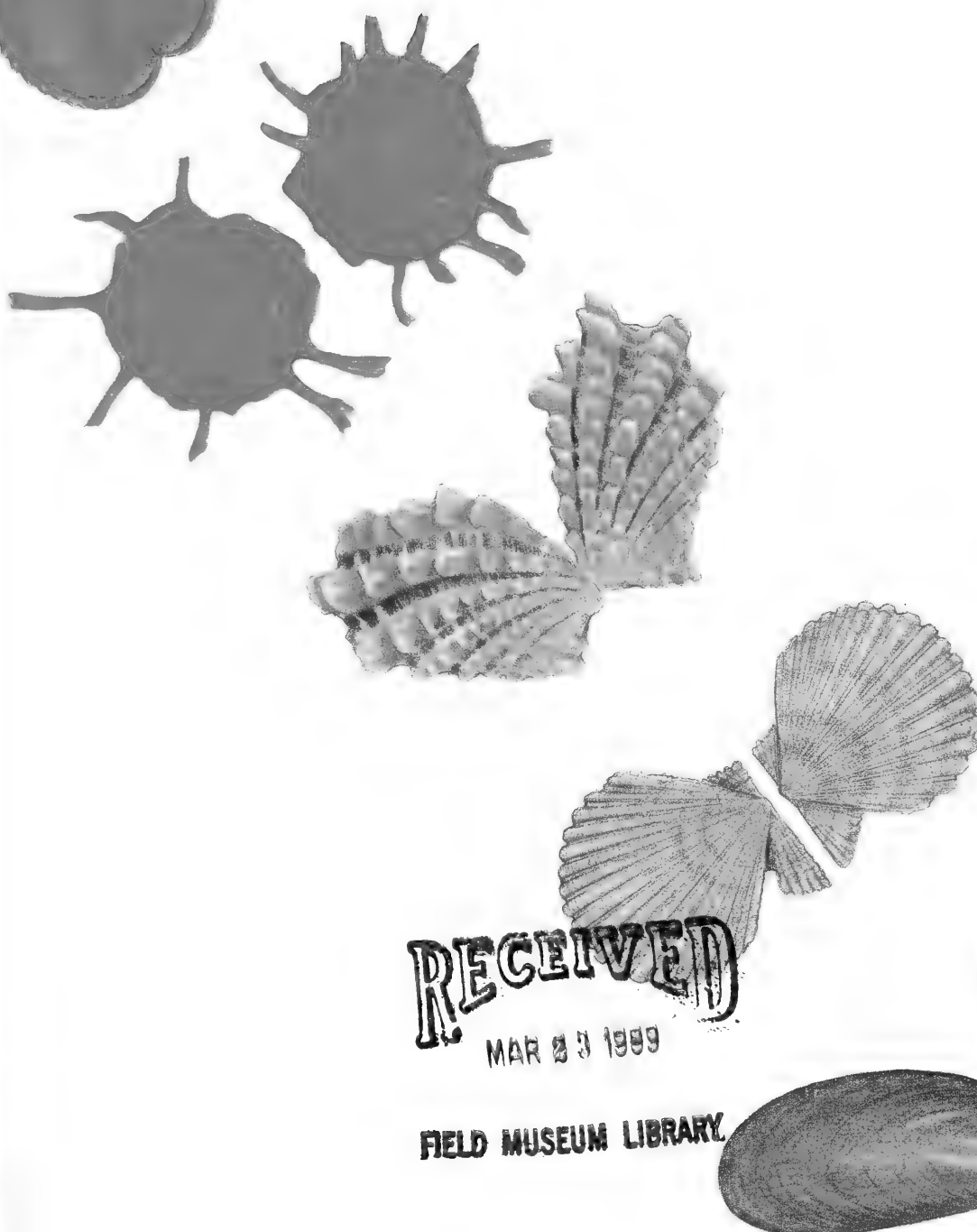
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QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 17, NO. 1

MARCH 1989



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and the world. An annual convention is held each year in a different part of the country.

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**COVER:** Mathilde Duffy's celebration of bivalve color. Left to right: *Corculum cardissa* (Linne, 1758); *Spondylus sinensis* Schreibers, 1793; *Cardita crassicosta* Lamarck, 1819; *Chlamys senatoria nobilis* (Reeve, 1852); *Perna viridis* (Linne, 1758); *Septifer bicularis* (Linne, 1758).

#### OOPS!

In the December *American Conchologist*, Vivienne Smith's World Record Size shell was the victim of a misprint. Listed as "*Amaea fermiana*", it should read "*Amaea ferminiana*". Credit for the photograph of Vivienne's shell should go to John Timmerman.

In the caption on page 4 for the photo, far left, "*Cominella virgata*, 30mm" and "*Cominella maculosa*, 43mm" should be reversed.

In *Contemporary Conchology*, page 15, line 21 should read "*Sthenorytis pernobilis*."

In the box on page 17, it should be noted that June 25-30 will see the joint American Malacological Union/ Western Society of Malacologists Biennial Meeting in Los Angeles.

We incorrectly listed COA Executive Board Member Herb Young's address: he lives at 14550 Stone Avenue N., Seattle, WA 98133.

#### PRESIDENT'S MESSAGE

As the comedienne says, "Can we talk?" If you are like me, you initially bypass Presidents' columns to get to the heart of the *American Conchologist*: the articles, notes and ads. And as you can see, this is a large and colorful issue. But if I could, I would like one moment of your time for a serious topic.

Like motherhood, baseball and apple pie, there are topics with which we all profess agreement. We became conchologists because we appreciate and are in awe of the beauty and complexity of nature. Most of you are dedicated conservationists and environmentalists. Some of you would not take a live mollusk, and we respect that. The majority of our members believe that a reasonable amount of live shell material may be taken, if taken in a responsible way — taking few specimens, leaving juveniles, turning back rocks, etc. We also realize that habitat destruction is a much more serious threat to marine, freshwater and land mollusk environments than is a sheller obtaining a few live specimens.

I have heard too often when collecting that I should take more than one or two live specimens because "you can always use them for trade." There is no earthly need to collect, either for sale or for trading, dozens or even hundreds of live specimens. We as a group should not be so conscious of obtaining "live collected" material. Let's leave that to the scientists. Why are we so concerned about shells having opercula? Many of the shells we purchase "w/o" may not have the original operculum for that species, anyway. And it's hard to guess the color of a bivalve's interior by looking at a live specimen. We are better off choosing exactly what we want from the open, "fresh dead" shells to be found.

I firmly believe that taking one or two live shells from common species does no harm, but taking that one or two for yourself and then two dozen more live specimens "for trade" is sad. Dealers — be proud to advertise "fresh dead" specimens. Purchasers and traders — obtain specimens for their beauty or interest — don't demand live-taken shells or collect bags of shells.

The last conservation measure is the outright ban. California prohibits live collecting of mollusks from the shore. And reports from the Florida Keys indicate the *Strombus gigas* is making a quick comeback after a collecting ban four years ago. We can be effective in preserving mollusks without bans — first by habitat preservation and then by conservative collecting, for future generations to know the joys of conchology. Let's leave as a legacy to our grandchildren and their grandchildren that we aspire to be preservers and stewards of the environment — not exploiters.

Hope to see you all in San Diego in June.

ALAN



Alta Van Landingham, the pleased winner of the COA Trophy at the 1988 North Carolina Shell Show for her beautiful exhibit of self-collected shells from the Red Sea. Congratulations, Alta!

## THE BOUNTIFUL GIFTS OF BIVALVES

by Nancy Gilfillan

Remember those days, before we collected shells, when the only place we didn't look as we walked the beach was down? And if we ever did look at what it was that we were walking on, all we saw were the grays and whites of broken and dead shells. In my case, one day, I noticed a gleam of purple on the beach, and on closer examination, I discovered a broken piece of shell with some purple on it. What was this? My curiosity piqued, I began to ask questions, found my way to shell books, discovered my bivalve was called *Mercenaria mercenaria*, and so another amateur conchologist was born.

But our debt to bivalves goes much deeper than the gift of a cherished, lifelong hobby. As I studied shells, I learned that as long as mankind has been on earth, we have depended on bivalves for food. Archaeologists have unearthed from prehistoric graves many varieties of bivalves, put there to nourish the dead in their afterlife. In the latest digs in Peru, for example, gorgeous, perfect specimens of *Spondylus* were found in undisturbed priest-king-warrior tombs, offering proof of the Andean tradition that *Spondylus* was used as food for the gods.

Through the ages, oysters, clams, mussels, scallops and assorted other species have been staples in our diet. I wonder if we fully appreciate this remarkable food source, and can stop the pollution that is destroying it before it is too late. Picture a fisherman's platter with nothing on it but a fish fillet and a crabcake, and you'll see how much poorer we could be.

Bivalves have provided shelter for us too. In 17th Century St. Augustine, the Spaniards discovered that "coquina" (formed in the Pleistocene by billions of *Donax*, solidified into a mass mixed with sand and cemented with calcite from the shells themselves) could be shaped with a saw or ax, but hardened when exposed to air. Thus in 1672 they began the construction of the Castillo de San Marcos; eventually, most of St. Augustine's other public buildings and its finer homes were built of coquina rock.

Bivalves have contributed to clothing mankind, as well, in a small way. From ancient times on, Sicilian women used to spin the byssus of the Noble Pen Shell into cloth-of-gold, from which they made gloves, stockings, caps and collars. After World War I, this type of cloth was no longer made. Some historians think that the fabled Golden Fleece, long sought by Jason and his Argonauts, was made from *Pinna nobilis* silk.

Even the world of finance has its bivalve representatives. In colonial times, the Indians living on the North American coast from

New England to Virginia made "black" wampum from the purple part of the *Mercenaria mercenaria*. Originally used in the form of belts to record treaties and transactions, wampum was used as currency by both the Indians and the colonists. However, when counterfeits flooded the market in the early 1800's wampum was outlawed as currency.

In the Solomons, on the other hand, currency consisted of round drilled disks carved from *Tridacna gigas*. And, as late as the 1970's women on Malaita Island were manufacturing currency from *Chama* bivalves.

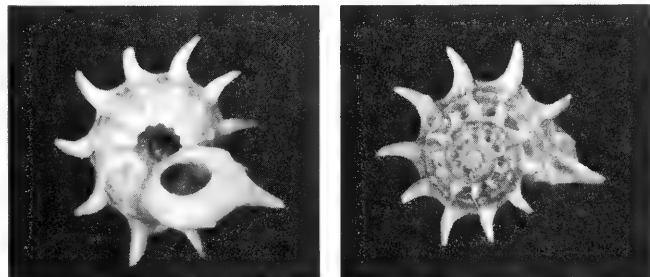
Through the years, mankind has found other uses for bivalves: sharp-edged clams as razors for shaving and tribal body decoration; *Pinctada* and *Pinna* as plates; *Tridacna* as salad and punch bowls as well as baptismal fonts; *Placuna* as windowpanes before glass became commonplace; crushed oyster shell as low-traffic road material; *Mytilus* as an early warning system for pollution and, most recently, as the source for the first glue capable of bonding wet surfaces, making repairs to ships below the waterline and bonding teeth to gums feasible; the list goes on.

When we turn from the practical world to the creative one, we find the scallop coming into its own as King of the Bivalves. It has been used as inspiration by artists, architects and sculptors for thousands of years. In prehistoric carvings and paintings, the scallop was used as a symbol of sex and religion. Later, the myth of Aphrodite's rising from the sea in a scallop was recorded in figurines and on wall paintings and vases from 400 B.C. through medieval times. It was during the Renaissance that Botticelli painted his famous "Birth of Venus," and artists and craftsmen turned out exquisite cups and chalices with the same motif. Also the scallop has always been used as ornament on furniture and public buildings. But the most famous scallop of all was *Pecten jacobaeus*, the badge of completion for those returning from a pilgrimage to the Holy Land. And so it continues to the present day.

Bivalves not only have entered the English language in phrases such as "warming the cockles of your heart" and "to clam up," but also have been immortalized both in nursery rhyme (Mary, Mary, Quite Contrary) and in song (Sweet Molly Malone). And finally, although gentlemen through history might have been happier without the bivalves' greatest gift to the ladies, pearls, those Jewels of the Sea have been sought after, treasured and cultivated since Eve opened that first oyster.

There are less than 10,000 species of bivalves in the world today (as against some 50,000 univalves). How is it then that the bivalves' contributions to the welfare and enjoyment of mankind have been so disproportionately great? Perhaps it is time to take a fresh look at bivalves and appreciate them for what they have given us.

\*COA member Nancy Gilfillan, 9922 Edward Avenue, Bethesda, MD 20814, is well-known for her many trophy-winning exhibits at shell shows around the country. She belongs to the National Capital Shell Club.



*Bathyliotina glassi* McLean, 1988

Among the many new species taken in recent years by Philippine tangle net fishermen in the Bohol Straits, a beautifully sculpted and spined little turbinid caught the eye of former COA BULLETIN

editor, Charles Glass. Charlie recognized the tiny yellow shell as something unusual, and pictured it as a Mystery Shell in the June 1984 Bulletin. He also showed it to Dr. James H. McLean at the Los Angeles County Museum of Natural History. Dr. McLean, in the April 1988 issue of *The Veliger*, determined that the shell was new to science and, fittingly, he chose to honor Charlie Glass in the naming of it. Charlie, the latter half of the Foster and Glass team at Abbey Specimen Shells, is an enthusiastic admirer of beautiful and unusual shells, as well as a veteran traveler to the Philippines who has learned to speak the Philippine dialect, Tagalog.

*Bathyliotina glassi*, like the rest of its genus, is characterized by a spinose periphery, a broad umbilical opening, and its greatly thickened final lip. It is large for its genus, and has unusually long spines. *B. glassi* belongs to the subfamily Liotiinae, family Turbinidae.



# Scallops

Scallops have dozens of eyes along the mantle edge. When frightened, the scallop snaps its valves and swims away.  
**BAY SCALLOP**, 2½" (6 cm), *Argopecten gibbus* (Linnaeus, 1758).  
 Only the internal, round muscle is eaten.



Alice Barlow, photo

## THE SPECTACULAR SCALLOP

— Sacred, Scrumptious  
 and Sex Symbol

by R. Tucker Abbott



**ZIGZAG SCALLOP**, 3" (8 cm). *Pecten ziczac* (Linnaeus, 1758).  
 Carolinas to Florida to Brazil. Shallow water, over sand.  
 Common.

No shell has been linked longer with man's activities than the scallop. Early Neanderthal and Cro-Magnon man burial sites show that the large, edible scallop of the Mediterranean was first used for food, serving dishes and ornaments. From the days of the English Crusaders to the times of Victorian architecture the scallop has been a major motif. Even today, nearly every town has a scallop shell reminder hanging in front of a leading refueling station. In many parts of the world there are major shellfisheries in which millions of tons of scallop meats are being harvested each year.

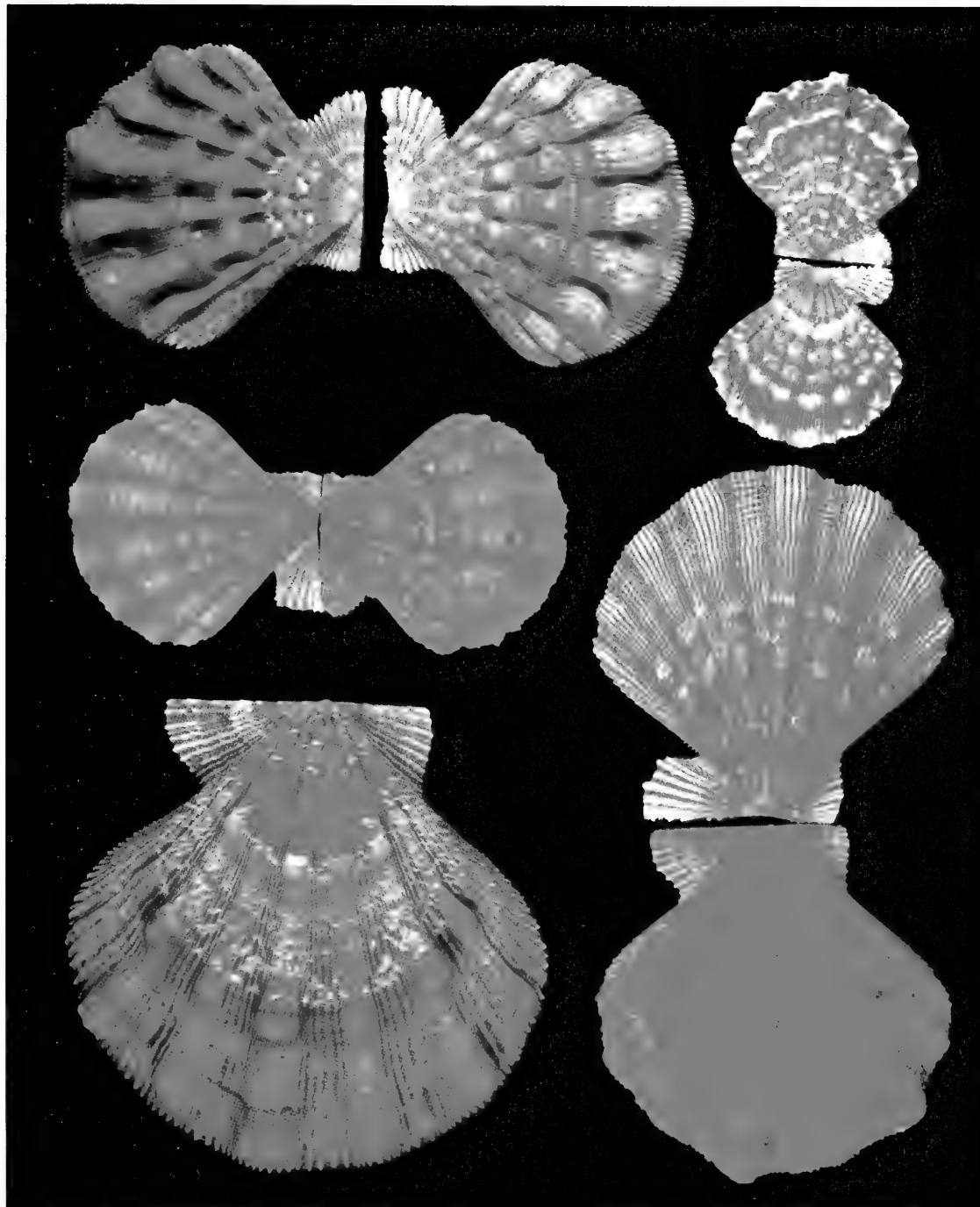
While the American public knows them as dainty seafood morsels, and commonly repeats the fanciful, but baseless, assertion that fake scallops are punched from shark fins, the real glory of the scallop is found in the collection cabinets of conchologists around the world. An estimated 500 species of Pectinidae offer a rainbow of colors and a multitude of sculptural variations.

About 3,000 names have been proposed for the living and fossil species in this worldwide family. Some live in shallow grassy bays, others at the bottom of the deepest seas. Experts have placed the valid species into about fifty genera and subgenera, but customarily only such genera as *Pecten*, *Amusium*, *Nodipecten*, *Chlamys*, *Argopecten* and *Propeamussium* are used in popular books. Few private collections today can boast of having more than 100 different kinds of scallops.

Throughout early Greek and Roman times, St James' Scallop, *Pecten maximus* (Linné, 1758), was associated with the birth of the love goddess, Aphrodite, also known to the Romans as Venus. The earliest known depiction of this goddess coming from a scallop shell was found in a 400 B.C. grave on the north shore of the Black Sea. Coins, ceramic pictures and terra-cotta figurines depicting Aphrodite arising from a scallop shell are common objects found by archaeologists. The tradition carried through in many Renaissance paintings, such as Botticelli's 1478 "The Birth of Venus" and Titian's 1520 "Venus Anadyomene Bathing."

If scallop shells inspired ancient artists, they also have intrigued biologists because of their peculiar swimming, anchoring and burying habits. The beautiful little blue or brown eyes that bedeck the edge of the mantle of a living scallop, and the double row of tentacles are unique among the bivalves. Swimming in quick, zigzag darts is customary among some scallops, while others, like the *Chlamys*, anchor themselves by means of a clump of byssal threads created by a tiny fingerlike foot.

# Lion's Paw Scallop



From the Gloria Scarboro collection.

Most curious is the manner in which *Pecten zigzag* (Linné, 1758) of the West Indies and *Pecten maximus* of the Mediterranean can blast away sand to create a trench in the sea bottom. When the shell wiggles into the depression, a few more claps of its valves shower sand over the top of the shell, thus hiding it from the sight of marauding fish or crabs. Shell-collecting snorkelers must spot these hidden scallops by the faintly evident ring of eyes peering up from the sand.

The six most extensive scallop fisheries are in southern Australia (*Pecten modestus* Reeve, 1852), New England and Alaska (*Placo-*

*ecten*), Japan, Florida, western Europe and Southeast Asia (*Amusium*). In Japan, the colorful Noble Scallop, with its vivid purple, yellow and red color phases, is now being extensively raised in captivity. The Saint James Scallop of Europe is popular as a baking dish as well as a seafood. The abundant offshore Calico Scallop of Florida was not commercially feasible until a new shucking method was devised in the 1960's.

Whether we eat them, paint them or collect and study them, the scallops are spectacular mollusks, and are worthy of our praise and admiration.

**SPONDYLUS****Jewels of the Sea, but a Challenge to Study!**

by Thora Whitehead

Man has collected seashells since his earliest days on earth, but not until Roman times is there a record of interest in the study of shells and the animals which create them. After the collapse of the Roman Empire, there was again little interest in natural history until the Fifteenth and Sixteenth Centuries, when interesting specimens of all kinds were introduced to Europe by early voyages of discovery.

Due to their beauty and durability, many shells became an important part of the natural history collections of the rich. In 1681, Buonanni, an Italian Jesuit, published the forerunner of many books devoted to the study of shells. Entitled "Recreatione dell'Occhio e della Mente," the title still seems apt today, for most shell collectors like to enjoy "Recreation of the Eye and Mind" when working with their shells.

As shell collecting continued to increase in popularity, the collectors of the day coined their own names for shells to facilitate discussion with other collectors. Confusions naturally abounded until Linnaeus in 1758 introduced his system of binominal nomenclature, adding a new dimension to the study of mollusks — taxonomy.

Linnaeus' system of classification is indeed an indispensable tool, but using it can certainly exercise the mind! The question, "What is a species?" is not always easy to answer, particularly when some groups are extremely variable in form, and proving that isolated populations can (or cannot) interbreed is most often impracticable. At least for the present time, "species," like beauty, may be in the eye of the beholder.

A study of the *Spondylus* is a case in point. These thorny beauties are restricted to warm/temperate waters, living sublittorally, attached by the lower or right valve to coral or rock in a variety of habitats and depths. The shape, size and spining of the adult shell varies greatly with the immediate environment. Young shells may settle in unsuitable

places where there is inadequate room to grow, and so be deformed. Shell color is also very variable in a number of species. In short, *Spondylus* are about the ultimate in intraspecific variability. To answer the question, "What is a species?" you need to see a lot of shells. It helps to have a friend who is a dealer!

Basic spondylid features are: a) unequal valves and umbones; b) left valve with conspicuous ears; c) external sculpture of spined ribs on the left valve, similarly spined ribs on the right valve with some lamellate sculpture toward the area of attachment; d) a hinge with two stout teeth on each side; e) a large, posteriorly placed adductor muscle scar in each valve; f) a free mantle edge with eye spots.

Of these characters, the shape and degree of inflation of the valves and the rib and spining pattern (but not the length or form of the spines) are the most useful characters for identification. The hinge shows little interspecific variation.

At present, it seems that there is little work available on the biology of the *Spondylus*.

Following the publication of Mr. Lamprell's recent monograph, it is to be hoped that more collectors will turn their interest to *Spondylus*, for nothing is surer than that there is much more to be learned about them. Not only are they beautiful, but deciding the identity of that odd one in your collection can still necessitate mental activity! In addition, a small number of nominal species have not been encountered since they were first described. Perhaps they have been overlooked and await rediscovery? And perhaps there are species yet to be discovered?

It would be a foolish person indeed who entered an argument as to the world's most beautiful *Spondylus* species! Exceptionally fine specimens can occur in a number of species, but it seems that the U.S.A. does have more than its fair share of these!

**SPONDYLUS - Notes on the American Species**

by Kevin Lamprell

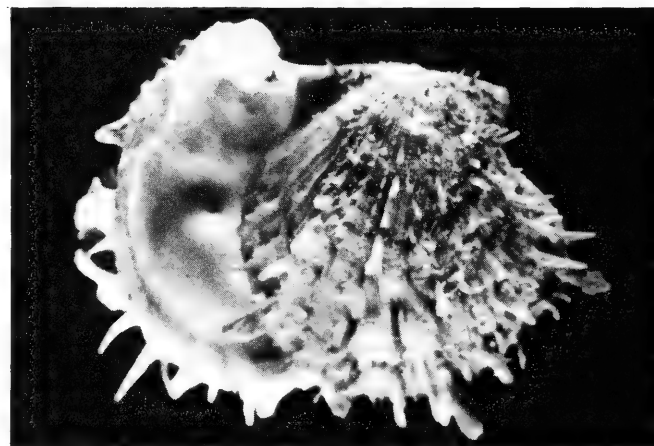
When I was first invited to contribute an article on *Spondylus* to the **American Conchologist**, I thought, "Certainly, no problem," but since then I have had time to think, and have found that where to start is quite a problem.

I began working on the *Spondylus* after some six or seven years on the study of Australian bivalves. However, our Australian *Spondylus* seemed to extend throughout the Pacific, and the incredible intraspecific variability of these beautiful shells and the multitude of synonyms for many of the species made much wider study necessary. Finally, I decided to "have a go" at the family world-wide in order to record the work that had come about more or less as a by-product of the initial study on the Australian species.

The problems of such an undertaking were numerous, but help from many friends among the ranks of professional and amateur malacologists helped me overcome them. In particular, Dr. R. Tucker Abbott, who visited our convention in 1985, gave me great encouragement, especially by assisting me in obtaining a copy of Schreibers' *Versuch einer vollständigen Conchylienkenntnis nach Linnaeus System*. Without this assistance, I wouldn't have been able to complete the *Spondylus* book.

**NOTES ON THE AMERICAN SPECIES:**

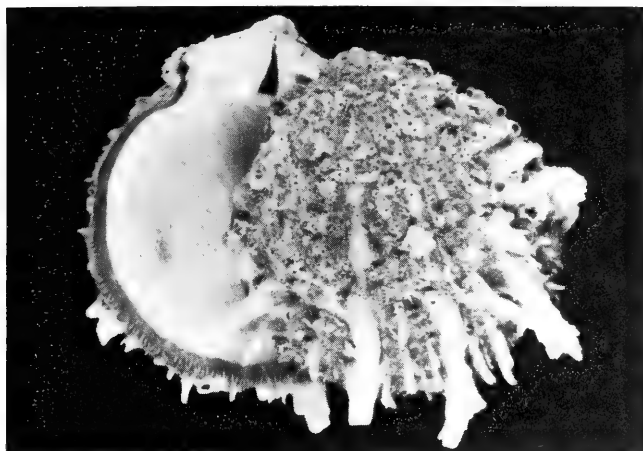
*Spondylus americanus* Hermann, 1781 is extremely variable in its ornamentation, sometimes almost smooth, but usually it has short

*Spondylus ictericus*

or long straight spines or short spatulate spines. This variability has led to a long synonymy; this beautiful species must have presented quite a problem for our early malacologists. In addition to the synonyms I show in my book, *S. striatospinosus* Chenu, 1845 should possibly be added.

*Spondylus ictericus* Reeve, 1856. Schreibers' *S. tenuis* (1793) certainly appears to be this species, and is possibly a prior name;

\* Kevin Lamprell, 58 Marsden Road, Kallangur, Queensland 4503, Australia, author of *Spondylus — Spiny Oyster Shells of the World*, and Thora Whitehead, 172 Burbong Street, Chapel Hill, Queensland, 4069, Australia, are currently at work on a book about the Australian bivalve fauna.

*Spondylus ursipes*

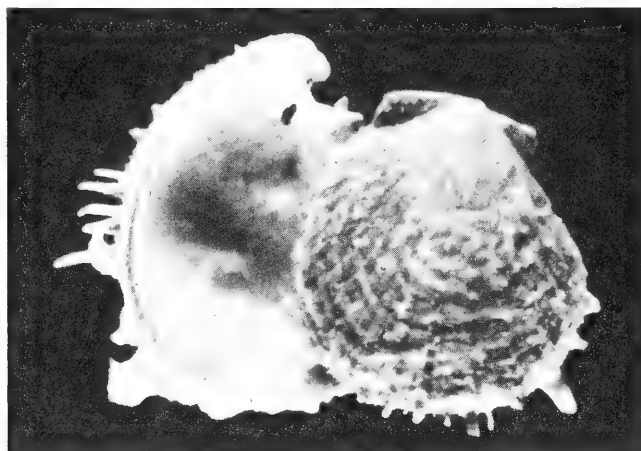
again, this is a very variable species.

*Spondylus erinaceus* Reeve, 1856. The distribution of this species is the West Indies, but I have in my collection a specimen with the label, "*Spondylus gussoni*. Deep water off Palm Beach, Florida." Now this species is not *S. gussoni* and most certainly is *S. erinaceus*, but perhaps it does occur off Florida. Does any reader have any knowledge to support this possibility?

*Spondylus linguafelis* Sowerby, 1847. This beautiful species has what may be the widest distribution of all the species, occurring from north Australia, through the Pacific to Hawaii. The short spined form, *S. linguafelis asperimus* Sowerby, 1847 occurs in Australia, and I feel sure that it is only a matter of time until some diver discovers the longer spined form in some sheltered wreck or coral cave in Australian waters.

While much discussion has taken place on the spining variations among the species, Peter Clarkson, who has dived *S. linguafelis* in both the Solomons and the Philippines, says that the long-spined form only occurs in very sheltered habitats such as shipwrecks, while the shorter spines occur in rougher conditions. Jared R. Simmons has also informed me that the long spined shells from Hawaii occur only in sheltered conditions.

*Spondylus electrum* Reeve, 1856. The beautiful specimen in my book is the only one I have seen. It was obtained by Bruce Crystal in the Caneel Bay at St. Johns., US Virgin Islands. It was taken from a rock in sand and coral in 2 feet of water. I am surprised that the beautiful shell does not show up in more collections. Internally, it is iridescent white with deep orange crenulated margins and some orange in the middle of the shell; the lower valve is

*Spondylus caducifer**Spondylus electrum*

foliaceous with some spining marginally.

*Spondylus nicobaricus* Schreibers, 1793. This very variable species is usually recognizable by its ovate shape and moderately short spines. In the Hawaiian shells, the color is usually white with buff spines, or light brown with areas of chestnut brown. Synonyms are many.

*Spondylus princeps* Broderip, 1833. Appropriately named, in my opinion, as it is the most beautiful of the American species. It would appear that *S. dubius* Broderip, 1833 is the earliest name for the species, but with the species so well known as *princeps*, it would seem desirable that professional taxonomists take the necessary action to validate current usage. Along with its recognized forms *S. leucacantha* Broderip, 1833 and *S. unicolor* Sowerby, 1847, it is readily identifiable.

*Spondylus calcifer* Carpenter, 1857. This heavy, not-so-attractive shell was used extensively in making lime for early building construction (Keen, 1971). In its young state, it has well-defined sculpture, but as it ages (like so many of us) its external sculpture becomes very badly eroded. Internally, it is magnificent, with a chalk-white center, purple inner margin and bright yellow outer margin.

*Spondylus ursipes* Berry, 1959. This species is similar to *S. calcifer* and may be just a form of that species. It is usually red, with well-defined white ribs and coarse white spines. In the interstices of my specimens, there are several rows of dense, sharp, depressed spines which are lacking in *S. calcifer*. Internally, it is chalk white

## Spiny Oyster Shells of the World SPONDYLUS

KEVIN LAMPRELL

Consulting Editor-Thora Whitehead

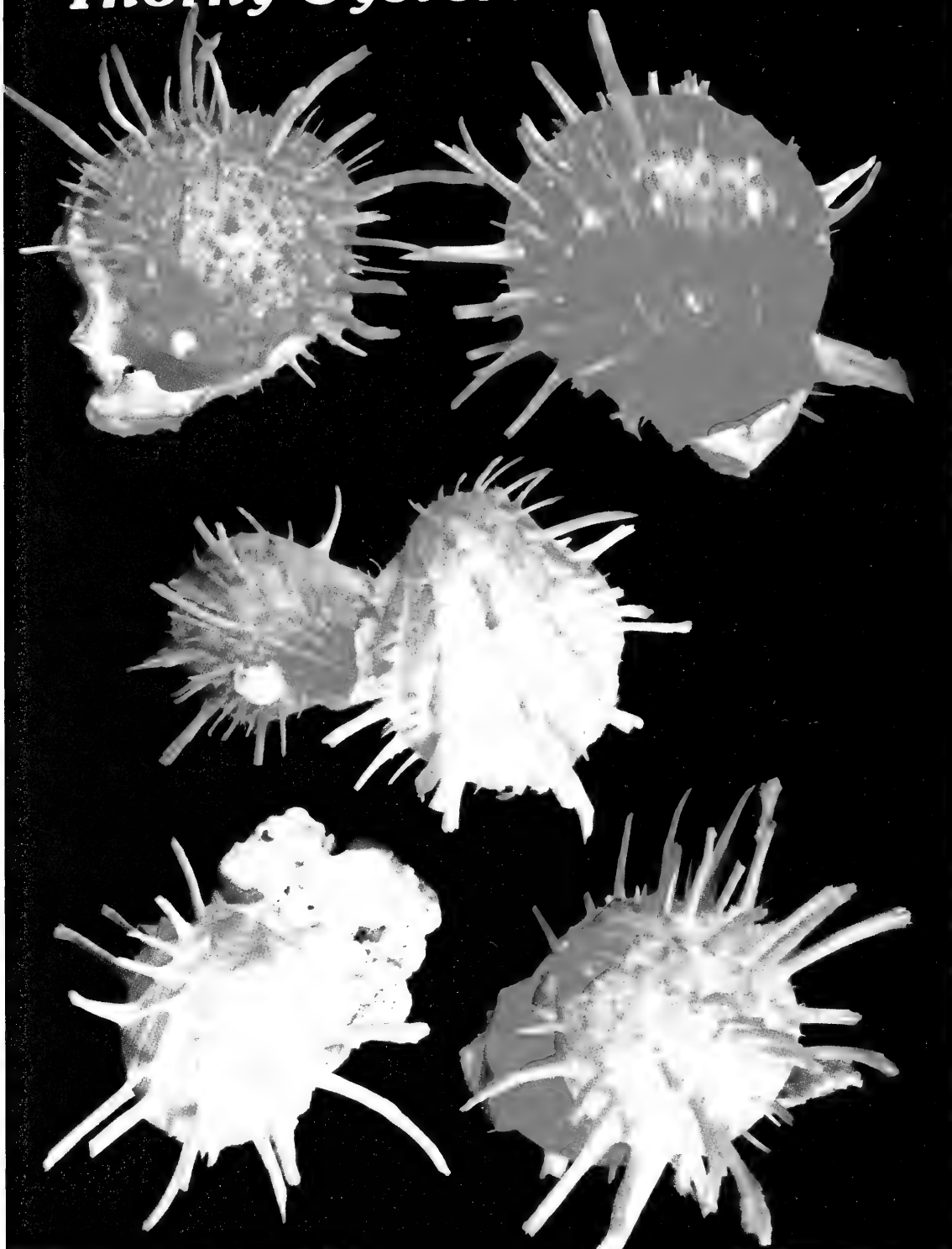
**SPONDYLUS- Spiny Oyster Shells of the World** by Kevin Lamprell. 84pp., 30pls. in color. Robert Brown and Assoc., P.O. Box 29, Bathurst, N.S.W. 2795, Australia. \$18.00 US.

With over 150 specimens in color, and with detailed descriptions and full synonymies, Mr. Lamprell has reviewed the 160-or-so validly proposed *Spondylus* names and reduced them to about 60 valid, worldwide species. The fossil and invalid names, such as those of Meuschen, are omitted. Collectors of these beautiful spiny bivalves may now match up many of their specimens with the ones beautifully illustrated in this 84-page book. Errors are few, although *Spondylus violascens* Lamarck, 1819, is given the common misspelling of *violascens*. This is the best modern book on this popular family.

- R.T. Abbott



# Thorny Oysters



with a bright tan or orange margin.

## Elusive Species:

There are three named species from Hawaii that I have not been able to obtain. I would be grateful for any assistance toward this end. The species are:

*Spondylus sparsispinosus* Dall, Bartsch & Rehder, 1938.

*Spondylus parvispinosus* Dall, Bartsch & Rehder, 1938.

*Spondylus hawaiiensis* Dall, Bartsch & Rehder, 1938.

*Spondylus ambiguus* Chenu, 1845 from the Caribbean has not been

seen in recent times, so far as I know.

*Spondylus gravis* Fulton, 1915. Bruce Crystal sent me a specimen of a well-worn *Spondylus* from Bitter End, Virgin Gorda, British Virgin Islands, which could well be this species.

*Spondylus gilvus* Reeve, 1856 is known only from the type material in the British Museum of Natural History. Its distribution, as far as can be ascertained, is the West Indies and the British Virgin Islands.

Any information on these three species would be appreciated.

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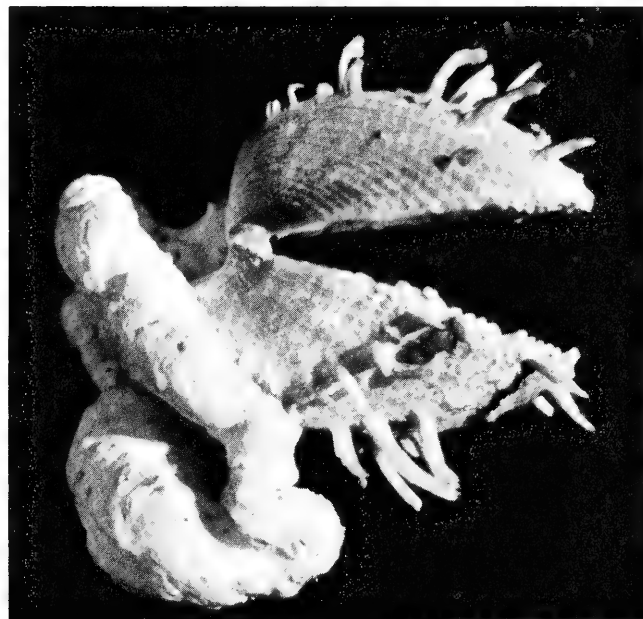
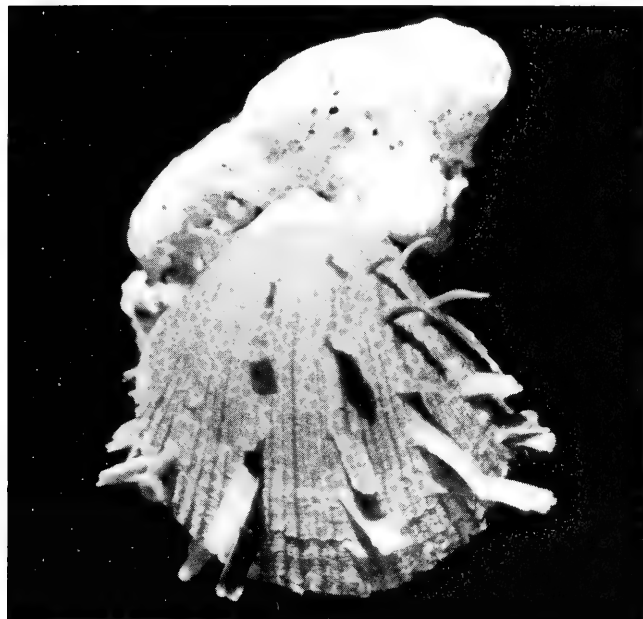


Plate I - Top and side view of *Spondylus erinaceus* Reeve.

## SPONDYLUS ERINACEUS REEVE, AN IGNORED CARIBBEAN SPECIES

by Emilio F. García

The Caribbean molluscan fauna includes two common and highly variable *Spondylus* species, *S. americanus* Hermann, 1781 and *S. ictericus* Reeve, 1856; it is, therefore, of no surprise that collectors promptly identify their specimens as one or the other.

In 1856 Lovell Reeve treated in his *Conchologia Iconica* the already known *S. americanus* and a number of undescribed *Spondylus* species, among which were *S. ictericus* and *S. erinaceus*. This species, readily distinguishable from both *americanus* and *ictericus*, was described as follows: Shell gibbously globose, nearly equivalve, radiately fine ridged, ridge crenulated, with five principal ribs in both valves, beset with irregular palmate scales; ridges yellow, scales darker red." Reeve later adds that the shell is of a peculiar reddish-saffron colour."

*Spondylus erinaceus* differs from *S. ictericus* and *S. americanus* in its globose, almost equal, valves. It further differs from them in the well developed scaly ("crenulated") ridges between the five main ribs (see fig. 1b). These ridges are devoid of any sort of spine formations and terminate in a heavily crenulated margin. The shell of *S. erinaceus* has a "peculiar" reddish-saffron color that attracted Reeve's attention and which is very distinct, at times assuming a bright yellow or an almost red hue.

Although *S. erinaceus* is rare in collections, its actual rarity is difficult to assess, since most divers usually collect more popular families. The species has been collected in the Lesser Antilles as well as the Western Caribbean, and unconfirmed reports place it as far south as Brazil. The specimen pictured in Plate I was collected in Cayos Vivorillas, eastern Honduras.

In his recent book on worldwide *Spondylus*, Mr. Kevin Lamprell

\*115 Oak Crest Drive, Lafayette, LA 70503.

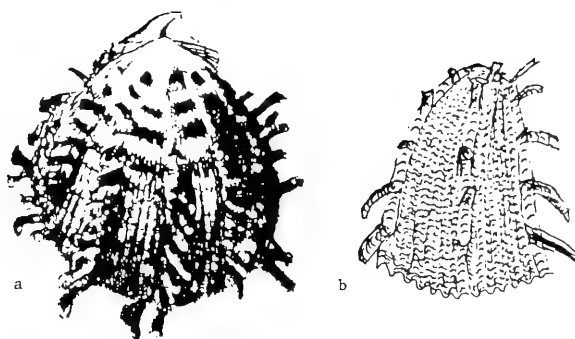


Figure 1. a) Original figure of *Spondylus erinaceus* in Reeve's *Conchologia Iconica* b) drawing of a section of *S. erinaceus* showing sculpture of ridges between main ribs.

recognizes *S. erinaceus* as a valid species and pictures it in color on Plate 17. It seems, however, that specimen 2B, in the same plate and identified as *S. gilvus* Reeve, is also this species. These two species may be synonymous.

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- Lamprell, Kevin. 1987. *Spondylus*, Spiny Oyster Shells of the World. E.J. Brill, pl. 17, p.51.  
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## DIVERSITY AND ADAPTIVE RADIATION IN MARINE AND FRESHWATER BIVALVIA

By David Nicol

To biologists, diversity means the number of different kinds of animals and plants. By different kinds they mean species, genera, or higher taxonomic categories. Many years ago the late J.P.E. Morrison of the National Museum of Natural History told me that he thought that there were no more than 2,000 living species of freshwater bivalves, and I (1978b) came to the conclusion that the number could be no more than 1,500 living species. Boss (1971) had previously stated that he estimated that there are less than 2,000 living species of freshwater bivalves, and I am using his compilations of number of species in major taxa of bivalves. In some instances, Boss's estimates of number of living species seem somewhat conservative. Beginning with an estimate of 1,500 species of fresh-water bivalves, it is within reason to assume that marine bivalve species total five times that number, which would mean 7,500 species. The total of 9,000 living species of bivalves seems reasonably accurate. Gastropods, however, are the most diverse class of molluscs, and the number of living species is about 50,000.

The characteristics of fresh-water bivalves depend primarily on the morphology and habits of the most diverse groups in this environment, i.e., the unionaceans, corbiculids, and pisiids. The freshwater bivalves are dominated by the Unionacea with more than 1,000 species, which is 70% of all living freshwater species. The Corbiculidae and Pisiidae each have about 100 species living in fresh water, and with the unionaceans, comprise 90% of all the fresh-water species. The remaining 10% of the freshwater species is represented by a few small families of freshwater species or by large families or superfamilies of marine bivalves which have a few species that have invaded fresh water, primarily in tropical regions (Purchon, 1968). In the marine realm there are many more families and superfamilies represented with no group so diverse that it dominates the marine fauna as the unionaceans do in fresh water.

Adaptive radiation refers to the range of living and feeding habits of a group of animals. Some species of a group may be carnivores, others herbivores; some may be burrowers whereas others are attached to a hard bottom. As a general rule, the greater the diversity of a group of animals, the greater will be its adaptive radiation. Because there are many more species of bivalves in the seas than in fresh water, one would expect to find a greater adaptive radiation in the seas than in fresh water. See Table 1.

By far the most common type of feeding that occurs in bivalves is suspension feeding (sometimes known as filter feeding). The animal takes small particles of food suspended in the water, commonly by creating currents of water toward its mouth. This type of feeding

has an advantage in that the animal does not have to move about in search of food. The first Bivalvia were probably suspension feeders, appearing in the Cambrian Period, 560 million years ago. Suspension feeding bivalves live in both fresh water and the seas.

The second most common type of feeding by the bivalves is deposit feeding. The animal moves through the soft sediments on the bottom ingesting particles of silt and digesting the nutriment surrounding the small particles. This mode of feeding is like that of an earthworm. Deposit-feeding Bivalvia first appeared during the Ordovician, 480 million years ago, and all Paleozoic bivalves appear to be either suspension feeders or deposit feeders. Deposit feeders are particularly diverse in the deep sea (Knudsen, 1970), but, strangely enough, do not live in fresh water (Nicol, 1984).

The Septibranchia have a modified type of gill that forcibly pumps in water and larger particles of food than is found in the suspension feeders. The Septibranchia are commonly called carnivores, and one of their common kinds of food is small Crustacea. This group of bivalves appeared in the Triassic, 240 million years ago and live in a deep marine habitat; no septibranchs are found in fresh water.

The giant clams (Tridacnidae) and a few species of cardids supplement their suspension feeding by ingesting algae which grow in the tissues of the mantle. All of the species of bivalves with this supplementary mode of feeding have thus far been reported from warm, shallow seas in the western Pacific and Indian Oceans.

All of the wood-boring Teredinidae (shipworms) ingest the small particles of wood and are able to digest them. These animals live primarily in a marine environment, but a few can live in fresh water. Possibly a few species of the related family Pholadidae can also digest wood.

Parasitism is rare in bivalves, but one species has been known to live in the gut of a sea cucumber (Purchon, 1968). No species of fresh-water bivalves are known to be parasites in the adult stage.

Some small-sized marine bivalves are closely associated with other invertebrates in a relationship commonly known as commensalism. These relationships appear to give the small bivalve the advantage of protection or an easier method of obtaining food. The bivalves live on the bodies or in the burrows of mainly echinoderms and crustaceans, but close relationships with sponges and echiuroids are also known.

Also, some small or medium-sized bivalves have a nestling habit (Nicol, 1983). Nestlers occupy abandoned borings and crevices, and the valves are commonly deformed to fit the shape of the depression. A species of the small bivalve *Sphenia* nestles in abandoned barnacle shells in Florida. Nestling bivalves and those living in close relationship with other invertebrates are not known in fresh water.

Rock borers are confined to the seas. The boring is most frequently done by mechanical means, but a few rock borers secrete acids (Nicol and Jones, 1986). Limestones are the rocks most commonly attacked by rock-boring bivalves. Rock borers commonly have relatively thin shells because they need to move frequently in their boreholes. It is easier to move a thin shell than a thick shell.

The largest marine species of bivalve attains a size of 1,370mm, and the smallest less than 1.0mm. The largest fresh-water bivalve attains a size of 280mm, and the smallest about 1.0mm. Thus the size range is much greater in marine bivalves than it is in fresh-water bivalves (Nicol, 1978a).

Less than ten species of unionaceans develop spines, but spinose species are frequently seen in the warm-water seas (Nicol, 1965). See Figure 1. All freshwater bivalves develop a periostracum, but some marine bivalves lack this outer layer. The periostracum protects the shell of fresh-water bivalves from corrosion. Color patterns on the shells of some tropical and temperate bivalves do not appear on fresh-water bivalves, but color bands do occur on the periostracum of some unionaceans.

At least 90% of the fresh-water bivalves brood the young as in the unionaceans, pisiids, and certainly some of the corbiculids. Most

ADAPTATIONS	M	F
Suspension feeding	+	+
Detritus feeding	+	-
Carnivores	+	-
Eating symbiotic algae	+	-
Eating wood	+	+
Parasitism	+	-
Commensalism	+	-
Nestling	+	-
Rock boring	+	-
Wood boring	+	+
Glochidium larva	-	+
Swimmers as adults	+	-

Table 1. Some of the adaptive radiation in marine (M) and fresh-water (F) bivalves.  
+ present. - absent.

\*Dr. Nicol, Box 14376, University Station, Gainesville, FL 32604, is professor emeritus, University of Florida.

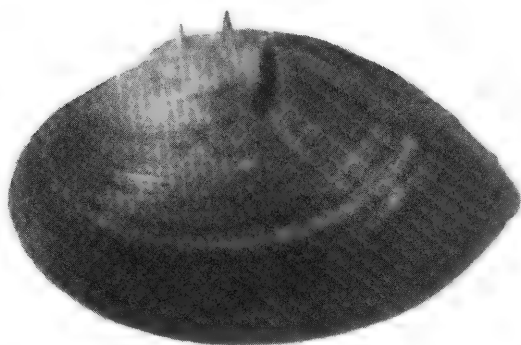


Figure 1. Left valve of unionid, *Elliptio (Canthyria) spinosa* (Lea, 1836) with three spines. Length of specimen 56.3mm. Length of longest spine 13.0mm. Altamaha River System of Georgia.

warm-water marine bivalves expel the eggs and sperm directly into the sea water where fertilization takes place, but many cold water marine bivalves brood the young in the body of the adult. In fact, fresh-water bivalves share more characteristics with cold-water marine bivalves (Nicol, 1967) than they do with warm-water marine bivalves. The glochidium larval stage that is an ecto-parasite on fish is known to occur only in unionaceans.

Shell-cemented bivalves are rare in fresh water. No more than three living species of unionaceans are known to attach to the bottom by means of shell cementation (Nicol, 1978b), whereas ostraceans, chamids, plicatulids, spondylids, and a few other minor groups attach by shell cementation in the seas.

More than 90% of all fresh-water bivalves live in the bottom (infaunal), while less than 80% of living marine bivalves are infaunal (Nicol, 1968). Deep-burrowing bivalves with long siphons are common in the seas but are rare in fresh water.

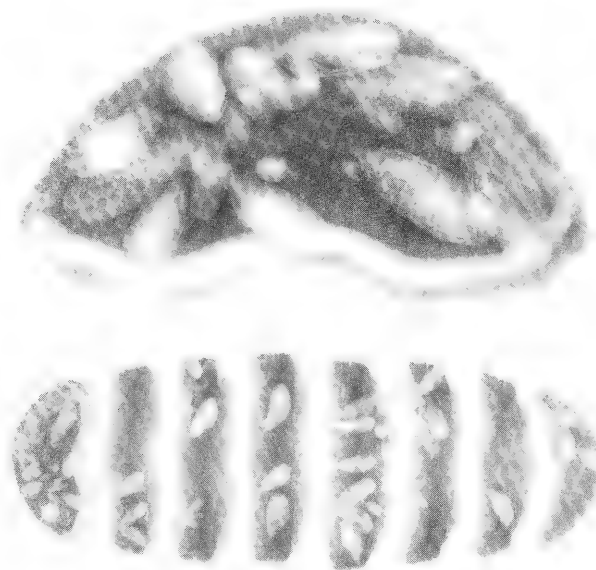
A few marine bivalves are able to swim in the adult stage, as, for example, some species of pectinaceans (scallops), but no fresh-water bivalve is known to swim as an adult. The adductor muscles for closing the valves in fresh-water bivalves are commonly two in number (dimyarian) and of approximately equal size. A single adductor muscle (monomyarian) is known in only one or two species of unionaceans. Monomyarian bivalves are more common in the seas, and this modified morphologic characteristic is well known in the Ostracea, Pectinacea, Plicatulidae, and Spondylidae. Inequivalved bivalves are rare in fresh water, but are much more common in the seas. In general, the highly modified valves of bivalves that occur among the clavagellids, gastrochaenids, teredinids, and pholads are not uncommon in the seas but are rare in fresh water.

The great adaptive radiation seen in marine bivalves is much reduced in fresh-water bivalves (Table 1), and the latter commonly have an ordinary and drab appearance as compared to some of their marine relatives. The most diverse fresh-water bivalve group is the unionaceans, and they also have the greatest adaptive radiation among the groups of fresh-water bivalves.

The earliest marine bivalves appear in the Cambrian, and fresh-water bivalves are not known before the Devonian, 380 million years ago. The living stocks of fresh-water bivalves apparently had their beginnings in the Triassic with the appearance of the unionaceans. Corbiculids can be traced back to the Jurassic, but many of them appear to have lived in a marine habitat. The pisidiids appeared as early as the Cretaceous. Smaller groups of living fresh-water bivalves commonly did not invade fresh water until the Tertiary. The modern fresh-water fauna cannot be considered as being represented by the most ancient and primitive stocks of bivalves, and the most diverse groups arose in the Mesozoic. Gastropods have a similar evolutionary pattern to that of bivalves. Gastropods occurred in the seas before they invaded fresh water, and they remain more diverse in the seas than in fresh water.

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#### Boring Clams Weaken Chiton Shell

by Robert C. Bullock, Ph.D.

The rock-boring bivalves of the genus *Lithophaga* have been reported from a variety of calcareous substrates, including corals, coral rock, and large shells. Bullock and Boss (1971: *Breviora*, Mus. Comp. Zool., No. 369) reported that one species, *L. aristata* (Dillwyn), can be found in the shell plates of the chitons *Chiton stokesii* Broderip from the eastern Pacific and *C. tuberculatus* Linnaeus from the West Indies. The presence of lithophages can weaken the shell, and they may damage portions of the photosensory esthete system of the dorsal shell surface. Radiographs shown here of the shell plates of a three-inch Stokes Chiton from Panama document how abundant this molluscan "termite" can be, although the individuals in this space-limiting habitat cannot grow much and probably do not reach sexual maturity.

\*Dr. Robert C. Bullock, Department of Zoology, Biological Science Building, University of Rhode Island, Kingston, R.I. 02881-0816.



## GROWTH RINGS AND LONGEVITY IN BIVALVES

by Douglas S. Jones

For as long as people have collected mollusks, they have wondered how long such animals live and how fast they grow. This is especially true for the bivalves, which according to folklore form concentric growth lines or rings on their shell surfaces, recording each year of their life. Such ideas are obviously not new and can be traced back for centuries, at least as far as the writings of the great Renaissance thinker, Leonardo Da Vinci. Leonardo could not resist the temptation to speculate on the nature of these growth rings when he wrote, "As if we could not count, in the shells of cockles and snails, the years and months of their life...." Even for twentieth century thinkers, the temptation remains. The regular spacing of external growth rings on shells and their progressive crowding as the animals grow older continue to prompt people to interpret them as age markers, analogous to annual rings in trees.

Actually, for many decades the growth patterns in molluscan shells have been the subject of serious biological and paleontological inquiry. Early workers concentrated on growth structures visible on the external surfaces of shells, such as ribs, frills, and concentric rings on the bivalve shells illustrated in Figure 1. These structures often were considered (usually without much evidence) to form annually, so that by counting the number of rings, a clam's age could be determined. Despite extensive study, however, the use of external shell growth patterns in most species has been found to be rather limited. The inability to distinguish true periodic structures on shell surfaces from random disturbance marks (e.g., those induced by severe storms), and the difficulty in obtaining accurate ring counts because of extreme crowding toward the edge of old shells, have contributed to skepticism concerning the reliability of external shell rings as age indicators.

Within the last few decades, studies of molluscan growth structures have focussed upon periodic patterns *within* shells. These studies have dramatically changed our ideas about the lifespans of typical bivalve species. For instance, longevity estimates of some common coastal bivalves, once thought to be fairly ephemeral creatures, have been extended to 50 years or more, while certain offshore species are known to live for over 100 years.

Internal shell growth patterns are best viewed in cross-sections taken from the umbo to the growing shell margin (Fig. 2). This technique is readily applied to bivalve shells, where a straight cut by a rock-cutting saw equipped with a diamond blade reveals the entire growth history of the animal in the sectioned shell. The majority of shells that have been examined in cross sections possess annual patterns of growth increments, typically recognizable as large white bands alternating with thinner dark bands or rings. The combination of one dark and one white increment represents an annual cycle of shell growth. The dark rings correspond to the rings on the shell's exterior (where there may also be spurious disturbance marks) and can form in response to reduced shell calcification rates resulting from a variety of factors, including cold winter or warm summer temperatures, annual spawning cycles, etc.

Because of this potential variability in timing and cause of ring formation, the periodicity of supposed yearly increments in a given bivalve species should be adequately documented before age assessments are made. This is frequently accomplished by mark-and-recovery experiments where live bivalves are marked, released for a known interval of time such as a year or two, recaptured and sectioned. The number of rings that formed in the elapsed time, and hence the periodicity of growth ring formation can then be determined. Other documentation techniques include monthly collection and analysis of specimens from local populations to assess seasonality of growth increment formation as well as a variety of sophisticated chemical/isotopic approaches.

Studies of internal shell growth increments confirm that annual rings are generally the most ubiquitous and useful periodic growth feature

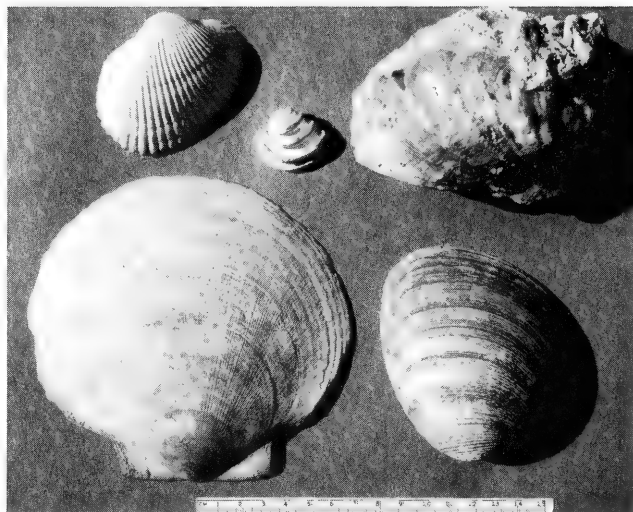


Figure 1. Selection of bivalve species showing some patterns of concentric shell rings, often thought to indicate age as do annual rings in trees. Clockwise from top left: *Venericardia tridentata*, *Chione latilirata*, fossil oyster, *Mercenaria mercenaria*, and *Placocopecten magellanicus*.

in bivalves, directly analogous to annual tree rings. However, they are not the only periodic shell structures. About 25 years ago, R.M. Barker suggested that a whole hierarchy of environmental periodicities are preserved as alternating light and dark increments in the bivalve shell. These range in size from a few microns to a few centimeters and are thought to reflect periodicities such as subdaily tidal cycles, daily light-dark cycles, fortnightly tidal cycles, and annual (seasonal) temperature cycles. Most of these smaller scale increments can be studied only with the aid of a microscope.

In almost every instance, bivalve ages that are based upon annual, internal growth increments are far more accurate than other estimates. In addition, the number of annual increments suggests lifespans substantially greater than had previously been imagined. For example, consider the case of the Atlantic Surf Clam, *Spisula solidissima*, one of the largest and most common marine bivalves from Canada to Cape Hatteras. On the basis of external shell rings this clam was once thought to live about seventeen years. Counts of documented yearly growth increments from shell cross-sections, however, reveal that individuals may actually live over 30 years.

Equally famous among seafood lovers is the New England Soft-shell or Steamer Clam, *Mya arenaria*. Once they were thought to

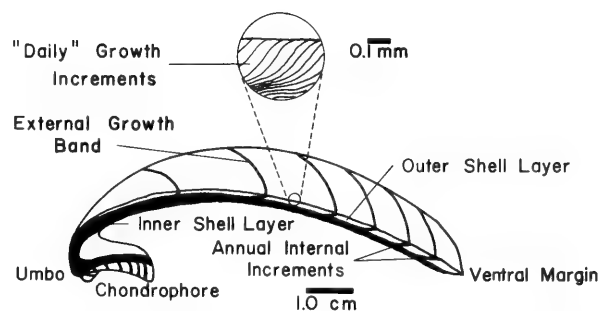


Figure 2. Radial cross-section through shell of bivalve, *Spisula solidissima*, exposing annual growth increments and "daily" growth increments, visible with a microscope.

\*Florida Museum of Natural History, University of Florida, Gainesville, FL 32611.

live for only a few years, but growth increment analysis has extended the known life span of this clam to at least 28 years. The story is much the same for *Mercenaria mercenaria*, the Hard Clam or Northern Quahog (perhaps more familiar as cherrystone, little neck or chowder clam — depending on its size). Scientists recently reported finding two live specimens that had been tagged 33 and 36 years ago and that possessed 33 and 36 growth increments, respectively. Large specimens from Rhode Island that lived over 50 years, occasionally approaching ages of 75 years, have been documented through growth increment analysis.

Soviet marine biologists have employed these age determination techniques with similar results. A study of lifespans of common bivalves from the far eastern seas of the USSR reported that over half the species had lifespans in excess of 20 years. Many were found to live beyond fifty years.

Although the idea of clams living for 20, 50 or 75 years seems a bit difficult to accept, the most surprising result of this entire research effort was the discovery of several bivalve species with over 100 annual shell growth increments. Naturally, substantial independent corroboration was sought to verify these age assessments, and the results largely have been upheld. A decade ago, *Margaritana margaritifera*, the European Freshwater Mussel, was considered to be the longest-living invertebrate, with an estimated lifespan of 100 years. Today it is but one of many bivalve centenarians, and definitely not the longest lived.

For example, specimens of *Panope generosa*\* the geoduck (pronounced gooey duck) clam, harvested commercially from the West Coast of the United States, have been found to possess 120 annual increments. On the other side of the Pacific, *Crenomytilus grayanus* from Peter the Great Bay is reported to have the greatest lifespan encountered among mollusks from the USSR, 150 years. Perhaps the slowest-growing centenarian bivalve, however, comes from the deep sea. The diminutive *Tindaria callistiformis* grows extremely slowly in the cold dark world it inhabits, attaining a size of only 8.4mm in 100 years.

The Ocean Quahog, *Arctica islandica* (Fig. 3) currently holds the longevity record for bivalves as well as for all non-colonial invertebrates, and may, in fact, be the longest-lived animal. Individuals dredged from the middle Atlantic continental shelf often show over 150 annual growth increments. One specimen had 220! Because of these unusually high age estimates, mark-and-recovery experiments were supplemented by radiometric dating techniques to test the yearly periodicity of the internal growth rings. The results verified the annual nature of the rings and confirmed the conclusions regarding age. The longest-lived animal on earth may well be a bivalve!

\**Panope generosa* Gould, 1851 is now known as *Panope abrupta* (Conrad, 1849).

#### SUGGESTIONS FOR FURTHER READING

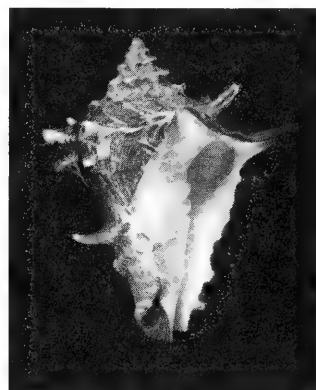
- Jones, D. S. 1983. Sclerochronology: Reading the record of the molluscan shell. *American Scientist* 71: 384-391.  
Rhoads, D. C. and R. A. Lutz. 1980. *Skeletal Growth of Aquatic Organisms*. New York. Plenum Press. 750pp.  
Turekian, K.K. 1978. On reading seashells. *Discovery* 13: 2-11.



Figure 3. External view of valves of *Arctica islandica* showing thick, dark brown periostracum. Scale has cm divisions.

## NEW MARINE SNAIL DISCOVERED

by William K. Emerson,  
Curator of Mollusks  
American Museum of Natural History



*Vasum stephanti* Emerson and Sage, 1988, holotype AMNH 225987, 103mm.

photo by Andrew Modell

Museums receive specimens for their scientific collections from many sources. Among biological collections, those of mollusks are unusual in that 80 percent or more of the specimens in major museums were originally collected by amateurs. During the past year, the Department of Invertebrates [AMNH] accessioned more than 25,000 specimens of Recent mollusks, most of which were collected by knowledgeable amateurs and generously donated by them to the museum.

Through the years, our molluscan collection database has been greatly expanded by the cooperation of a legion of dedicated shell collectors. A case in point is the recent discovery of a new species of *Vasum* from off the coast of Somalia. The specimens were obtained from Danish commercial shrimpers by Captain Adolphe Stephant of Lorient, France, a shell collector for whom the new species was named. Two American shell dealers, Edward T. Schelling of Shalimar, Florida, and John H. Bernard of Crosseville, Tennessee, alertly called attention to this discovery and donated the type specimens used by Walter Sage and me to describe the new species, *Vasum stephanti*.

Emerson, W.K., and W.E. Sage, III. 1988. A new species of *Vasum* (Gastropoda, Turbinellidae) from off Somalia. *The Nautilus* 102(1):36-39.

(Adapted from The American Museum of Natural History 119th Annual Report, 1987/1988, page 30.)

## NEWS RELEASE

A.J. (Bob) da Motta, a COA member since its beginnings in 1973, has issued a statement regarding the disposition of his collection, here summarized: "I take much pleasure in announcing that discussions with the Staatliche Museum fuer Naturkunde in Stuttgart [West Germany], have now successfully resulted in their acquisition of my Conidae and Olividae collections on [mutually satisfactory terms]. [The museum] is conveniently located in Central Europe....The Curator is a malacologist with an eye for the aesthetic as well as a scientific interest in the Conidae.

"My plans for the future will be to continue with new acquisitions to add to the collection. At 75, one never knows what fate may suddenly have in store....The study material may now be passed on to others....The Museum will welcome all visitors as soon as...the collection has been curated and is ready for viewing."

## PUBLICATION ANNOUNCEMENTS

We have received information from the publishers on the following books:

*Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Mollusks*. American Fisheries Society Special Publication 16, 1988. Compiled by members of the malacological community and in cooperation with major malacological organizations, this is the new standard of nomenclature for aquatic and terrestrial North American mollusks. ISBN 0-913235-47-4 (cloth); ISBN 0-913235-48-2 (paper), 277pages + 12 color plates, ISSN 0097-638. Price: US\$30.00 (cloth), US\$24.00 (paper) — American Fisheries Society, 5410 Grosvenor Lane, Suite 110, Bethesda, MD 20814-2199.

## THE COCKLES - CHARM AND CHALLENGE

by Harry G. Lee

As the companion essays in this long-needed anthology will no doubt better attest, conchologists who neglect their bivalves (and most do so to some extent) are depriving themselves of many pleasures — aesthetic as well as scientific. As I look at my bookshelf for works on seashells, especially popular books purporting to have a general scope, I see that more than half of these books under-represent the bivalves *vis-à-vis* the snails — a few don't even include **any** bivalve species, despite the pretense of "seashells" in their titles.

Why has the class Bivalvia been given such short shrift? I think the answer lies in a form of conditioning foisted on conchologists by both researchers and popularizers in the Twentieth Century. The trouble is, we've reached a point where this negligence is self-perpetuating, at least in the popular literature. Why collect cockles (or Venerids, or piddocks) if there is no effective identification guide available?

I submit there are two good reasons to overlook this discouragement and press on with the chase. These are: (1) the shells (hereafter "cockles") are beautiful and comprise an aesthetically pleasing symphony of variations on a few conchological themes; (2) decisions about identification and classification demand involvement by the collector himself. He is compelled to penetrate a layer deeper into the marvelous mystery of the shaping of this fauna. Spoonfeeding is fine for cowry and volute buffs, but one is on his own with all but a few of the bivalve families. Once over the threshold to bigtime head-scratching, the collector begins to experience a sense of intrigue, independence and fulfillment which usually, I suspect, has been reserved for the professionals in our ranks. Frustration is, however, a pervasive force in this kind of work — it's not for the faint of heart! The following discussion will summarize the systematics of the family while pointing out a few interesting taxonomic problems. Hopefully (with the help of illustrations) it will exemplify these two attractions.

Myra Keen (1980) produced a taxonomic summary of the cockles recently. One of the most illuminating features of her paper is actually its introduction, in which she offers insight into the development of her interest and of her systematic scheme over the forty-five years she contemplated the group. This personal chronicle is a good starting point for students of cockle systematics and taxonomy. Her major lesson is, perhaps, "The essence of classification is grouping," (Keen, 1980) — a simple enough lesson, but one which is not evident in many new species descriptions today! Keen divides the cockles (superfamily Cardiacea) into two families, the Lymnardiidae and the Cardiidae (hereinafter, authors and dates will be omitted in all but essential cases). Some taxonomists also place the *Tridacna* group of clams in this superfamily, but, in this discussion, they are not considered cockles.

The Lymnardiidae are a fascinating group, likely unknown to most of us. The species inhabit certain large and ancient Eurasian lakes, including the Black Sea. The ancestral stock apparently left the Mediterranean Basin perhaps 50,000,000 years ago, during the latter years of the Tethys Sea. *Adacna relict* (Milaschewitz) (Fig. 1) is a one inch species found in Lake Razelm, Roumania. Most species seem to occur in the lakes of the Caucasus and in the Caspian Sea.



Fig. 1: *Adacna relict* (Milaschewitz, 1916) Lake Razelm, Roumania, H. Lee Coll. 1".

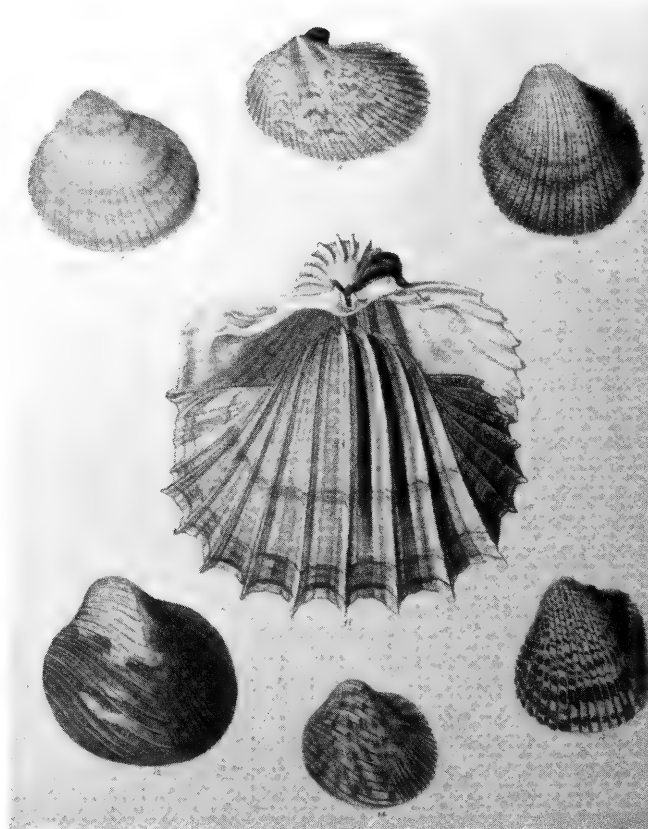


Fig. 2: Plate II Monograph of the genus *Cardium* Reeve (1844-5) in *Conchologia Iconica* vol. 2. From above (l. to r.): *Cardium bullatum* Lam., *papyraceum* Chem., *multispinosum* Sow., *costatum* Linné, *lyratum* Sow., *aeolicum* Börn, *unedo* Linné. (x1/2).

Thus, the pertinent literature is both obscure and written in Slavic languages. Furthermore, specimens are not readily available in the Free World. There is a good variety of shell forms, which range from trigonal to the Paper-Cockle-look-alike in Figure 1. All species have undergone a reduction of their hinge teeth.

Keen divides the main family, Cardiidae, into six subfamilies based on shell characters and, to a lesser extent, on soft anatomy. (A brief account of anatomy and habits of cockles appears in Yonge and Thompson (1976).) These groups are Cardiinae, Trachycardiinae, Fraginae, Hemidonacinae, Protocardiinae and Laevicardiinae. Each subfamily has a binary key to its constituent generic units based on shell characters. The keys are no better nor worse than others which I have used (and generally abandoned). Examples of many genera and subgenera (usually type species) are illustrated by line drawings and one plate of photographs. A brief thumbing of these illustrations will acquaint readers with the diversity of shell form within the Cardiidae.

The "typical" subfamily, Cardiinae, contains eight genera and 21 subgenera, of which four genera (nine subgenera) include Recent species: *Cardium*, *Acanthocardia*, *Parvicardium*, *Plagiocardium* and *Vepricardium*. The first three are limited to the Eastern Atlantic and Mediterranean. The type species of the *Cardium*, *C. costatum* Linné, 1758, is depicted in the center of Figure 2 (see below). In the nomenclatorial sense, this is a typical cockle, yet it is not at all typical in the conchological sense, being a rather spectacular offshoot. The genera *Vepricardium* (discussed below) and *Plagiocardium*, are Indo-Pacific groups. Abbott and Dance (1982) illustrate examples of each genus.

Subfamily Trachycardiinae includes four genera and ten subgenera, all but two of which are represented in the Recent fauna. *Trachycardium*, *Acrosterigma*, *Papyridea* and *Vasticardium* are the constituent genera. The first and last are so close as to cast doubt on the system and to confound zoogeographers: the former is exclusively New World and the latter, Indo-Pacific. Abbott and Dance (1982) illustrate species of all four genera but, defensibly, lump *Vasticardium* and *Acrosterigma* (at least the type, *reeveanum*, of *Regozara*, which Keen treats as a subgenus) under *Trachycardium*. Why are these very similar shells so widely distributed geographically? Would newer taxonomic techniques reveal convergence of shell characters derived from formerly more divergent ancestors, or would they show a more recent divergence of these stocks?

The Fraginae include eight subgenera of four genera: *Fragum*, *Corculum*, *Ctenocardia* and *Trigoniocardia*, all of which are of recent geological origin and are extant today. Most species occur in the Indo-Pacific and the New World. All genera are exemplified in Abbott and Dance (1982).

The fourth subfamily is the Hemidonacinae, comprised of a single genus, *Hemidonax*, known from the Recent of Australia and the Philippines. The type species is *H. donaciformis* (Bruguère, 1792). (Fig. 3).

The Protocardiinae, as the name suggests, constitute the most ancient of all Cardiid lines, dating to the Upper Triassic (200,000,000 years ago). Only eight subgenera of *Nemocardium*, which arose in the Lower Cretaceous, survive today. Three genera and eighteen subgenera are extinct. The Protocardiinae are small, mostly deeper water dwelling, and are mostly New World, Japonic and Indo-Pacific in distribution.

The Laevicardiinae, like the Trachycardiinae, are newcomers in the family. The Eggshell Cockles and their subfamily relatives date back to the Eocene, and all four known genera (eight subgenera) are extant today. Shells of *Laevicardium*, *Cerastoderma*, *Clinocardium*, and *Serripes* are easily separated and are treated in Abbott and Dance (1982). The latter three are limited to the cooler waters of the Northern Hemisphere, while *Laevicardium* is basically circumtropical.

So, one may already have asked, how many species of marine cockles in the nineteen genera are out there today? This question has been addressed in detail (Fischer-Piette, 1977) with exhaustive synonymies, nomenclatorial and taxonomic discussion, and documentation of geographical range. A few type specimens are illustrated for the first time. The bibliography is extensive and invaluable. The author lists 160 species, plus 59 of uncertain status. Two features make this *magnum opus* problematic. One: the author employs genera in a bizarre and incomprehensible fashion, utterly inconsistent with Keen's system, without advancing an argument to defend his drastic innovations versus accepted standards. Two: numerous synonymies are inaccurate from my point of view, particularly in (what Keen calls) *Vasticardium*. The problem of the species count is ongoing! Best estimate: 200 plus or minus 50! Fischer-Piette's is a monumental work upon which subsequent workers can (and must!) build.

The exercise of identification of species sooner or later becomes comparatively difficult. One popular work, Abbott and Dance (1982), includes 77 species. Minor inaccuracies (writer's opinion — see appendix) are present, but no other modern-day and general work com-

pares to, nor can significantly complement, *The Compendium of Seashells* as an identification guide. Wilson and Stevenson (1977) monographed the Cardiidae of Western Australia, treating 31 species of which four were new and most are more cosmopolitan in distribution. Descriptions and illustrations are excellent.

Beyond these two works, the student (at about this point, the "collector" evolves into the "student") is advised to seek much older books and/or original descriptions. Reeve (1844-5) illustrated and described 133 species, most with such artistry and accuracy (Fig. 2) that this work, illustrated with G.B. Sowerby's lithographs, each print of which was hand-painted, remains the most beautiful and useful "book" on shells to this day. Nowadays, xerography may bring the student (collector) closer to the rare *Conchologia Iconica*. The Linnean cockles (about 15 valid species) have been studied by Dodge (1952), who cited, but did not include, illustrations. Beyond these four works, the literature is fragmented. Authoritative treatments of regional molluscan faunas such as Abbott (1974), Keen (1971), Powell (1979), Macpherson and Gabriel (1962), Kay (1979), Kilburn and Rippey (1982), Hirase (1954) and Tebble (1976) fill in many of the hiatuses, but there remains a major gap in the treatment of the (large) Indo-Pacific and (small) Eastern Atlantic cockle fauna. Identification of species from these areas in particular may necessitate the use of original descriptions (nearly all cited in Fischer-Piette's bibliography) and/or museum searches for authentic specimens or types.

Inevitably some species will defy identification, even after all the above resources are exhausted. It appears that a species of *Vepricardium* Iredale, 1929 qualifies as an example. It seems that there are at least six Recent species (Fig. 4) belonging in this genus. Each has a microsculpture of pustules on and between the ribs — heretofore unreported, but unique to the genus (Fig. 5). The species are (Fig. 4), left to right, from above: *asiaticum* (Bruguère, 1789) [= *lima* (Gmelin, 1791) in part]; *multispinosum* (Sowerby, 1838) [= *pulchricostatum* (Iredale, 1929)]; *fimbriatum* (Wood, 1815) [= *lima* (Gmelin, 1791) in part; ? = *coronatum* (Spengler, 1799); = *fimbriatum* (Lamarck, 1819)]; *incarnatum* (Reeve, 1844) [= *mirabile* (Deshayes, 1854)]; unknown; *sinense* (Sowerby, 1844). They are found in various parts of the southwest Pacific and northeast Indian Oceans. The unknown species was taken from diving depths off Masbate Island, Philippines and I obtained it from Victor Dan of Manila. It measures 48mm, has 48 ribs, is lemon yellow to flesh-colored, with a purple margin to the valves' interior and exterior. The coloration is typical for the genus, but this apparently distinct species has more ribs, a higher shell, more tumid beaks than the others. The synonymy employed above is my own — here elaborated for the first time — a result of my search for the identity of the



Fig. 3: *Hemidonax donaciformis* (Bruguère, 1792) Siasi, Sulu, Philippines Ex Frank Lyman, Lee Coll. 1".

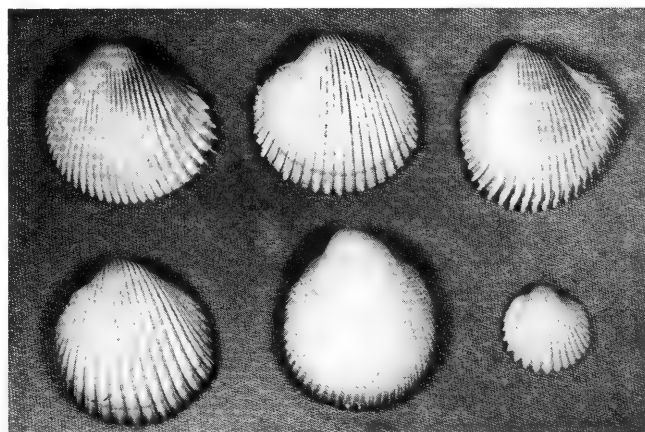


Fig. 4: *Vepricardium* species (above, l. to r.): *asiaticum* (Brug., 1789); *multispinosum* (Sow., 1838); *fimbriatum* (Wood, 1815); *incarnatum* (Reeve, 1844); unknown; *sinense* (Sow., 1844) Lee Coll. 1-2".





Fig. 5: Photomicrograph of *Vepricardium incarnatum* (Reeve) demonstrating pustules, especially between the (darker) ribs, an apparent generic character (field = 4x4mm).

Dan/Masbate shells. It represents a significant departure from both Fischer-Piette (1977) and Wilson and Stevenson (1977). Does anyone know the species in question?

"Lost" species are not the sole property of the rare and sought-after gastropod families. The writer has two Cardiids which seem to qualify. *Vasticardium leucostoma* (Reeve, 1845) so closely resembles the Western Atlantic *Trachycardium magnum* (Linné, 1758) that numerous authors took them to be the same. The former (Fig. 6) appears to represent an Indian Ocean species ("Singapore," according to Reeve, from which the photo is taken; Mahé, Seychelles, ex R. Goldberg in the case of the shell in the juxtaposed photo). Fischer-Piette (1977) illustrated the type of *Cardium leucostoma* Börn, 1778 and thereby demonstrated its identity with *magnum*. Therefore Reeve's species is a misidentification of Börn's *leucostoma* (which does differ on conchological as well as zoogeographical grounds). Furthermore, Reeve's name is not available because of homonymy. It appears that this "lost" species (*leucostoma* Reeve non Börn) is lacking a name, unless it be one of the several synonyms listed by Fischer-Piette. These names (e.g. *enode*, *maculosum*, *unicolor*, etc.) all appear to refer to distinct species, however. Should someone give this "lost" species a name?

*Vepricardium incarnatum* (Reeve, 1844) is mentioned above. Fischer-Piette (1977) is the only work of which I am aware that has made reference to this taxon since 1928. The author simply stated that the Muséum National (Paris) did not have a specimen and he could not offer confirmation of Reeve's Philippine type locality. Specimens which are clearly conspecific with *V. mirabile* (Deshayes, 1854) (see Wilson and Stevenson, 1977 for illustration of type), but which have fewer and less spinose ribs, came to my collection from

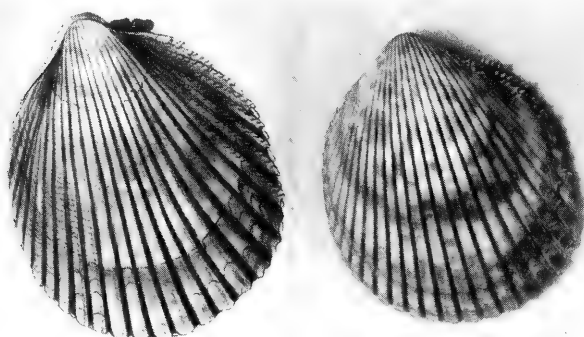


Fig. 6: "*Cardium leucostoma* Börn" Reeve, 1845 on left; same species from Mahé, Seychelles Ex. R. Goldberg, Lee Coll. on right. 2".

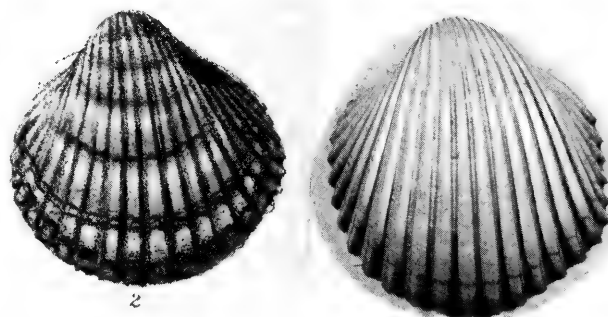


Fig. 7: *Vepricardium incarnatum* (Reeve) in Reeve, 1844 on left; same species from An Ping, Taiwan Ex R. Morrison, Lee Coll. on right. 2".

Taiwan waters, and a specimen is here juxtaposed with Reeve's type figure. Is there a type specimen at the British Museum (N.H.), where most of the Cuming/Reeve collection found its way? What does it look like?

The discussion has rapidly evolved into a series of questions! Perplexities seem inevitable once one sets sail on the not-so-charted waters of cockle classification. Such continuing problems (and I've butted my head against many more than the few above) serve to stimulate and direct the collection of new material. The outcome — in more finite and tangible terms — about 160 species" of beautiful and better—appreciated cockles in the Lee collection and (perhaps most importantly) going strong!

#### APPENDIX:

##### Suggested Corrigenda to Abbott & Dance (1982)

- p. 328 "*Trachycardium multispinosum* (Sowerby, 1841)" is not that species; possibly *nebulosum* (Reeve, 1845); see Fig. 4.
- p. 330 "*Lunulicardia retusa*" and "*subretusa*" reversed. "*Trachycardium asiaticum*" is *Vepricardium multispinosum*. (Sowerby, 1838); see Fig. 4.
- p. 332 *Plagiocardium pseudolima* appears to be limited to the western Indian Ocean.

#### Acknowledgement

The writer thanks Allan Walker of Jacksonville, Florida for assistance in photographic processing and Richard E. Petit of North Myrtle Beach, South Carolina for the use of his library resources.

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## BEST OF THE NEWSLETTERS

Paula Mikkelsen, Assistant Curator of the Indian River Museum, Fort Pierce, Florida, as well as graduate student at Florida Institute of Technology and Corresponding Secretary/Newsletter Editor of the American Malacological Union, was recipient of the National Capitol Shell Club's Scholarship. She wrote the following article for the National Capitol Shell Club's Winter 1988 Newsletter. We are proud to offer it to you as our March Best of the Newsletters.

## SNAILISH CLAMS

by Paula Mikkelsen

Most shell collectors enjoy observing living mollusks doing what they do naturally — crawling around, feeding, laying eggs and otherwise "behaving molluscan." To most readers, this sentence has likely conjured up visions of one particular kind of mollusk, namely a snail, perhaps something large and showy like a tulip or a conch. If I were to insist on an alternate subject — say a clam — the list of interesting activities to watch would be reduced in most cases to less active endeavors like digging, siphoning and clamping shut.

However, all is not dull and unexciting in the world of bivalves. I have recently been studying a group whose members are VERY active, almost "snailish" so — and extremely interesting from several viewpoints: ecologically, anatomically, as well as behaviorally. They belong to the superfamily Galeommatoidea, which includes the families Galeommatidae, Lasaeidae (= Kelliidae, Montacutidae), Leptonidae and Chlamydoconchidae. [The frequently-used names Leptonacea and Erycinacea refer to this same group.] Galeommatoideans unfortunately don't have common names, other than anglicized versions of the Latin genera — that is, we call a *Mysella* a mysella in the same way that we call a *Pecten* a pecten. All species in this group are small in size, and most are under an inch in length.

Ecologically, galeommatoideans usually live in association with other, often very specific, invertebrate species. They are not parasites, but rather commensals, deriving some sort of benefit from the larger "host," but not harming it. The benefit here is mostly protective habitat, but also may include increased food supply from the host's feeding activities or respiratory currents. Some of the clams actually attach to the host with byssal threads, as in a species of *Entovalva* which lives under the scales of the scaleworm *Lepidasthenia*, or any of a number of species which nestle among the spines and tube feet of sea urchins and other echinoderms. Other species merely live

WITH the host: *Lasaea*, on the east coast of Florida, lives nestled in the cracks and crevices of oyster bars; the five new species on which I am working attach themselves to the walls of the burrows of *Lysiosquilla scabricauda*, a 6-10" long mantis shrimp. In either case, attached or unattached, the clam occupies a very specialized habitat, and is therefore highly dependent upon its host for survival.

Anatomically galeommatoideans are rather unique and definitely not "typical" clams. The shell is usually thin, white and featureless, often with weak or rudimentary hinge teeth. It may be completely external or partially-to-wholly enveloped by the soft tissue of the mantle. Most fascinating are the numerous tentacles and papillae which ornament these mantle tissues, creating an appearance which has been called "nudibranch-like" by some recent workers. In my experience, unsupported by water in a sieve-full of moist sediment, these animals most closely resemble somebody's egg mass or, at times, mere blobs of indeterminate mucus! But when submerged, under close magnification, they are among the most exquisite of mollusks.

Illustrations of a few typical forms are reproduced here. Notice the pair of tentacles from what seems to be the "head region" of several of the clams (e.g., *Scintilla*, *Ceratobornia*). Indeed, these tentacles receive nerves from "cephalic" ganglia, although, like all other clams, a true head has been lost through evolutionary change.

Reproduction varies widely within this group: some species are hermaphroditic, possessing male and female structures in each animal; in others, males are reduced to dwarfs which live attached inside the larger, showy females. Most species retain their developing veliger larvae for a time, brooding them within the gill chambers to be released at a slightly more advanced stage.

The foot of the galeommatoideans is also a very interesting feature. Although most are equipped with a more-or-less normal byssal gland for producing attachment threads, the typical bivalve digging foot is modified here into an organ adapted for active crawling. Some species (e.g., *Entovalva*, *Ephippodonta*) possess sucker-like devices to assist in locomotion. All species known so far are able to actively crawl about on this highly specialized foot. Coupled with the "head" tentacles and other papillae, these clams look more and more snailish even to those of us who know better! Why have they developed the ability to crawl with such proficiency? The answer is probably linked to their dependence on a specialized habitat and host; if one is dislodged from a desirable hole or crevice, it is convenient, perhaps essential, to be able to crawl back in again.

The Galeommatoidea is a relatively small group which deserves additional systematic study. Soft anatomy is known in many forms — no small accomplishment in malacology, where so many species are known only from shells! What remains to be done is a comparison of the various species, to better define the genera and hopefully to determine their relationships as families and to other groups of bivalves.

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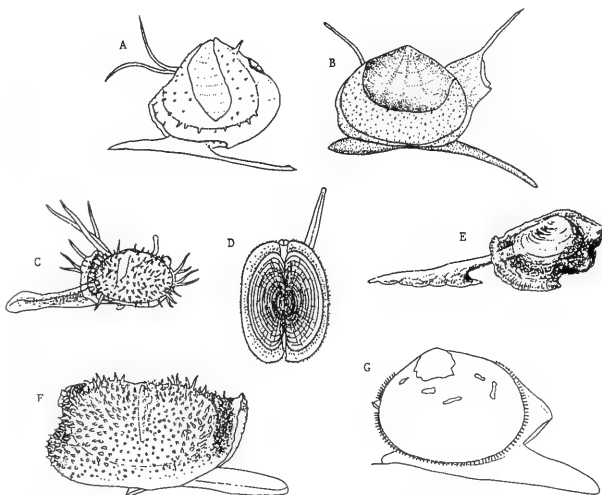


Figure: (A) *Ceratobornia* (after Narchi, 1966); (B) *Rhaphidonta* (after Bernard, 1975); (C) *Scintilla* (after Arakawa, 1961); (D) *Ephippodonta* (after Arakawa, 1961); (E) *Entovalva* (after Ohshima, 1930); (F) *Scintilla* (after Ponder, 1967); (G) *Arthritica* (after Ponder, 1965).

THANKS to Sanibel's *Junonia* editor, Pam Scott for her art work on the COA Dues Renewal Reminder Card! If you haven't already paid your 1989 dues, expect one in your mailbox soon!

## LETTERS TO THE EDITOR:

In her report on the Sweet Sixteen Convention in Fort Myers, Mili Backus gave an account of the raffle of a Golden Cowry donated by the Lipes. There were two other raffles: one was for a Slit shell donated by Richard Kurz; the second was for a Guided Sanibel Shelling Trip for six people, donated by **Captain Tom Clifford's Poseidon Adventure**. I was one of the three winners of this prize, and on the first low tide of the season — Oct. 29 — we happy shellers roamed the flats in a molluscan melange ranging from digging in sticky mud for *Cyrtopleura costata* Linné to collecting Melongenidae and Marginellidae, plus a host of other goodies. Thank you, Captain Tom, for making a sheller's dream trip a reality.

Eleanor Miller  
1890 Smith Drive  
Juno Beach, FL 33408

*Thank you, Eleanor, for pointing out this omission. COA is very grateful to Captain Tom Clifford and Richard Kurz for their generous donations, and we regret the oversight. It was through the generosity of kind members like Richard Kurz, the Lipes, and Captain Tom Clifford of Sanibel, as well as all the donors to the COA Auction, that the 1988 COA Convention was such a financial success.*

## WITH THE CLUBS: National Capital Shell Club

by Walter E. Sage

For eight years, Joe C. Hayes, ably assisted by wife Marjorie, edited the excellent newsletter of the National Capital Shell Club. Due to ill health, Joe had to give up this task, and Leslie Dykstra agreed to assume editorship until a permanent replacement could be found. To help handle the correspondence formerly answered by Joe and Marjorie, the club established the position of Corresponding Secretary. Please send ALL correspondence to: Mique Pinkerton, National Capital Shell Club, 1324 Westmoreland Drive, Warrenton, VA 22186.

The National Capital Shell Club Newsletter, under Joe Hayes' editorship and the assistance of his wife Marjorie, has been an excellent source of information on shells, and has set an enviable standard for club newsletters. We salute them for their many years of dedicated service to the NCSC and we mourn Joe's passing. Those who wish to express their appreciation and sympathy may write to Marjorie Hayes, 4203 48th Place NW, Washington, DC 20016.

## IN MEMORIAM

Albert C. Bergman  
Robert B. Fish  
Barbara Good  
Joe C. Hayes  
June Moran

## SANIBEL MUSEUM NEWS

The board of trustees of Sanibel Island's Shell Museum and Research Foundation, Inc. has retained the services of Dr. R. Tucker Abbott for a two-year period as Founding Director of the proposed shell museum. As a veteran malacologist, teacher, traveler and author of many shell books, as well as past Assistant Director of the Delaware Museum of Natural History, Dr. Abbott will bring a vast amount of experience to the position.

Dr. Abbott's duties as Founding Director of the Shell Museum will be to help plan and design the facility; in addition to shell exhibits, they plan to maintain a computerized index to the world's popular and scientific literature, and to establish a color-slide bank of photographs of type specimens, living animals and habitats for students, writers and publishers. "Through educational displays and activities," he states, "we plan to share the wonders of our seas and actively promote awareness of the critical need for more thoughtful conservation and protection of the earth's environment."

## BOARDTALK.....

From **COA Treasurer WALTER SAGE**: Thanks to all who have sent in their membership renewals for 1989. Those of you who have not renewed your COA membership by the time this issue goes to press will notice a reminder stamped on the envelope containing this issue. Please send your membership dues to me as soon as possible. We want to be sure to include YOUR name in the roster which we hope will accompany the June issue. We also would hate for you to miss additional information on our **June Convention in San Diego**, which promises to be a special event. As always, changes of address should be sent to me at the earliest possible date.

## NEW COA GRANT AWARDS

1989 mollusk research grants, up to \$1,500 per application, are available to qualified persons undertaking recent or fossil field or laboratory research work. The deadline for applications is May 10, 1989. **Mail to Dr. R. Tucker Abbott, Grants Chairman, P.O. Box 2255, Melbourne, FL 32902-2255.** Applicants must outline the proposed project, amounts and purposes for which the award will be used, including requested supplies, expendable equipment, living and/or travel expenses, or publication or illustration costs. Please submit a short biography, educational status or pertinent job experience, and a letter of recommendation from a scholastic or professional source. Awards are judged by the COA committee by June 1, and are made only to citizens or permanent residents of the Americas, and do not cover salaries, overhead, permanent equipment, conference or meeting costs. If awarded, a brief written account of the completed phase of the project is expected.

— Tucker Abbott, COA Grants Chairman

## ANNOUNCEMENT

The Department of Malacology of the Delaware Museum of Natural History announces the availability of awards for students of systematic malacology.

1. The **DMNH Trustees Award** (up to \$500, primarily intended to assist predoctoral and immediate postdoctoral students.)
2. The **Jean Austin du Pont Memorial Award** (up to \$500, intended for all levels *excluding* postdoctoral students.)

Application deadline is May 1, 1989. Awards will be announced on June 1, 1989. **Department of Malacology, Delaware Museum of Natural History, P.O. Box 3937, Wilmington, DE 19807, USA.**

## ANNOUNCEMENT

The **Jacksonville Shell Club** is proud to announce the offering of a five hundred dollar grant-in-aid to a scholar who has demonstrated an interest and competence in natural science. The applicant must be enrolled in a program of study at an accredited U.S. institution at the college or post-graduate level. Special consideration will be given those applicants who are pursuing a curriculum in systematics, evolution, ecology, and malacology.

Applications will be accepted until May 1, 1989, and the winner will be notified on or before June 1, 1989, at which time the award will be made. Applications must be accompanied by an academic transcript equivalent to the most recent year of study and two letters of recommendation, one of which should be from the department head or advisor. For information or application forms, contact:

**Harry Lee, M.D.**  
**Scholarship Committee**  
**Jacksonville Shell Club, Inc.**  
**709 Lomax Street**  
**Jacksonville, FL 32204**

## SHELLS IN PRINT

by Richard L. Goldberg

In past **Shells in Print** columns, I have reviewed books for content. This time I would like to focus on the creation of a publication I participated in from its inception in 1976. This project, dubbed a monograph of Long Island shells, "is unusual in that it was produced by a shell club, and was started when the club was only a year old.

After a dozen years of research, cataloging, writing and photography, **SEASHELLS OF LONG ISLAND, NEW YORK — A Guide to Their Identification and Local Status** has finally come to fruition. Let's take a closer look at it, and more importantly, at how a group of amateur shellers worked together to create it.

In an effort to identify a project that would bring together the energy, talent and enthusiasm of this new club, and work towards a significant common goal, the founding members decided on an island-wide survey of local marine mollusks, with a view toward eventual publication. In the early stages, field research was the only activity. It provided club members a chance to explore the intricately carved shoreline, and list records of intertidal mollusks from the East River and Brooklyn within the New York City limits, to Orient Point, the easternmost tip of Long Island.

The monograph committee met frequently to map strategies, plan field trips, update the LISC study collection, and verify rare shell finds. A master ledger was created to list all finds. Club members submitted extensive listings of their molluscan data. The puzzle of where local species might be found began to take shape. Long Island club members learned to plod their way through the maze of Latin names, and metamorphosed from weekend fossickers to serious field researchers. Field trips began happening on an informal basis — members getting together to comb the beaches, bays and estuaries of Long Island. A monograph column appeared monthly in the **LISC News** (currently **The Irradians**), listing finds and field trips and identifying local shells.

A number of spin-off committees formed (State Parks Display, Photography). As interest began to spread through the scientific community, with information shared back and forth, the club made invaluable friends. The professional community's help, guidance and encouragement were a great boost for the project. The Field Trip Committee also grew stronger, scheduling many more outings, in the cold months, to avoid the crowds of summer.

During the twelve-year project, interest waxed and waned, but always got back on track. The big question was, "When are we ready?" After many lengthy debates and false starts, a core committee began compiling all of the information — writing, rewriting, editing and re-editing.

The field collecting, continued. New finds were being recorded, even after the final draft was written! The photography continued for a number of years, adding and updating as new material became available. Many hundreds of exposures, weeks in the darkroom and viewing contact sheets finally produced the more than 100 black and white photographs to be included. The pieces were falling into place.

Printing and production of such a book is a rather expensive undertaking these days. Personal computers and members' resources helped prepare a manuscript and track down a professional graphic artist to lay out the book. Cost estimates more than doubled during the twelve years. But through LISC funds, generous donations of major Long Island firms and foundations, and a COA grant, a slick soft-cover book rolled off the press in December, 1988.

The 209 page 6" X 9" book illustrates New York's state shell, *Argopecten irradians*, on the color cover. The introduction states that the book is not intended to replace the long standing but out-of-print **Shells of the New York City Area** by Jacobson and Emerson (reprinted as **Shells From Cape Cod to Cape May**) but to update the occurrence, status and distribution of the approximately 120 species of shallow water, shell-bearing marine mollusks of Long Island.

Chapters include a short history of the study of the local fauna, use of the field guide, identification and terminology, and shelling

on Long Island, along with a map and keys to the localities discussed. The species accounts include full nomenclature, local and general distribution, a description, and a remarks section containing discussion of similar species and ecological notes. All the recorded bivalve, gastropod and chiton species are illustrated. An appendix on Faunal Relationships is a bit more technical, but contains a wealth of information. A systematic checklist contains 129 names of both shelled and shell-less mollusks recorded from Long Island waters. A second appendix lists unconfirmed and doubtful species. A four page bibliography and an index round out the book.

The photographs illustrate L.I. shells almost exclusively. Since some species occur here only in beach condition, a few are illustrated with live taken specimens from elsewhere to aid identification. In all cases, the best representative specimens were used to document the occurrence of a species on Long Island. This will be helpful in identifying your Long Island-collected shells as well as shells from other areas, because all of the species treated have an extended range on the eastern U.S. coast.

The catch-all phrase, "...useful for both amateurs and professionals," certainly applies here. **SEASHELLS OF LONG ISLAND** is a book that the LISC can be proud of. It is available from the LISC (\$14.95 includes domestic postage; \$4.00 additional postage for overseas mailing) by writing: Jack Odenwald, c/o LISC, 426 Hunt Lane, Manhasset, NY 11030.

### REVIEW:

Supplement to - A Catalog of Dealers' Prices for Marine Shells, ninth edition - Fall, 1988. by Tom Rice. 5½ x 8½, paper, 56pp. \$3.95. Available from the compiler.

This supplement covers the families Conidae, Cypraeidae, Muricidae and Volutidae and contains listings gleaned from retail sales lists of United States mail order dealers over the period from November 1987 to September, 1988. All data here provided are exactly as transferred from the various price lists consulted by the compiler. Misspellings appear to be of minor consequence. Names are listed alphabetically by species within each family; information includes author and date of publication, locality, quality (not verified by compiler), size and price. For the families covered, addenda denote species, subspecies or forms that have appeared in earlier editions of this catalog but which have not been offered by the surveyed dealers in the past year.

This supplement offers an excellent service which should prove valuable to the informed collector. It is important to note that the compiler is not responsible for the validity of a listed taxon and, as always, the user of this listing bears the responsibility of verifying the stated facts.

Walter E. Sage



A view of the COA Trophy winning exhibit at the British Shell Show in October, an in-depth survey of the European Pectinidae by Mr. Stanley Francis.



## CONTEMPORARY CONCHOLOGY

by Walter Sage, AMNH

Hawaiian species of the popular family Epitoniidae have been discussed by Helen DuShane<sup>1</sup> in the following issues of *Hawaiian Shell News*: June 1987, pp.1,4; November 1987, p.12; February 1988, pp. 3,4; April 1988, pp. 1,7; May 1988, pp. 9,10; July 1988, pp. 4,5; September 1988, pp. 4,5; October 1988, p. 5; November 1988, pp. 7,9; December 1988, p.10; January, 1989, p.11.<sup>2</sup> A proposal has been made to HSN Editor Thomas A. Burch, MD to print in a special publication the entire series of eleven articles, along with Helen's paper describing five species new to science, as published in the October 1988 issue of *The Veliger*. Those interested in this project should write to Thomas A. Burch, MD, Editor, HSN, c/o Hawaiian Malacological Society, P.O. Box 22130, Honolulu, HI 96822.

The new species are: *Epitonium hemmesi*, 10.8mm in maximum length, distinguished by the reddish-brown bands, heavy spiral cords with unevenly-spaced fine spiral lines between the costae (ribs), and the crenulated, slightly reflected costae, known from the islands of Oahu and Hawaii; *E. thorssoni*, 3.5mm in maximum length, recognizable by the brown bands and the scalloped costae, known to occur in Guam, the Philippines and Egypt, as well as the islands of Oahu, Hawaii, and Lanai; *Asperiscala goldsmithi*, to a maximum length of 7.5mm, distinguished by the skewed protoconch, the large number and orientation of the costae, and sharp shoulder spine, known from New Guinea, Fiji, Thailand, the Maldives, and the islands of Oahu, Hawaii, and Maui. *Opalia burchorum*, to 4.1mm in maximum length, separable by shell characters from similar species, known to date only from Oahu; *Laeviscala luceo*, to 3.7mm in maximum length, separated by shell shape and sculpture from the type species of this genus, and from all other Hawaiian epitoniids by its shining appearance, known from the islands of Oahu and Hawaii.

<sup>1</sup>Research Associate, Los Angeles County Museum of Natural History, Los Angeles, CA 90007.

<sup>2</sup>In the February, 1989 issue of HSN, DuShane discusses Hawaiian members of the genus *Scaliola*, first described as in the Epitoniidae, but now known to have characters that place it in the Diastomatidae (Vaught, 1989, p. 29).

## LITERATURE: REVIEW OF A NEW GENUS OF SCALLOP

by Richard L. Goldberg

In *Basteria* (Journal of the Netherlands Malacological Society), Volume 50, No. 1-3, 1988, pp.41-44, [The status of four scallop species...with description of a new genus'], H.P. Wagner proposes a new genus of Pectinidae for four species that he says, could not be classified within the existing generic system." The new genus, *Karnekampia*, is distinguished from the species' previously assigned genera based upon the microsculpture of the valves.

The species in question are: *sulcatus* Müller, 1776, found in northern Europe from the Arctic Ocean to the Irish Sea; *bruei* Payraudeau, 1826, from the Mediterranean and the adjacent part of the Atlantic from Galicia Bank, Spain, south to N.W. Africa; *gilchristi* Sowerby III, 1904, from the Cape Province, South Africa; and *alicei* Dautzenberg & Fischer, 1897, ranging from the Azores to Namibia. The first three species were formerly referable to the genus *Chlamys* s.s., and the latter to *Manupecten*. Wagner designates *Pecten bruei* as the type species of *Karnekampia*. All of these species inhabit deeper water.

Among other characteristics, Wagner distinguishes *Karnekampia* from both *Chlamys* s.s., and *Manupecten* by the presence of hollow ribs on the left valve. The sculpture in *Chlamys* s.s. consists of squamae, while *Karnekampia* has tubercles. *Manupecten* has tubercles only on the auricles, and they are much larger than in *Karnekampia*. Wagner states that over a period of ten years he has made a thorough study of the significance of the microsculpture in Pectinidae taxonomy. He concludes that in some cases it can be useful to determine species, but goes on to say it functions better as a criterion to define (sub)genera, along with other morphological characters.

## BOOK REVIEW:

**A Classification of the Living Mollusca** assembled by Kay Cunningham Vaught. xii = 189pp., 1989. edited by R. Tucker Abbott and Kenneth J. Boss. plastic comb binding, \$17.00; hardback, library binding, \$21.00.

Several years ago this author privately published an earlier version of this work, then called the "Outline." Now, after several years of carefully searching the realms of molluscan literature available, Kay Vaught has presented us with a "state-of-the-art" compilation of supraspecific names in the Mollusca. The author has done the best job possible of providing a systematic listing of family and generic names, with the details of classification often corroborated by the top specialists in particular groups of mollusks. This enormous task has resulted in a volume of nearly 200 pages, and taking into account over 15,000 named taxa, of which approximately 10,000 are considered to be valid, usable names (The remainder are now considered synonyms.)

In addition to introductory explanations, the volume includes acknowledgments, systematic arrangement, the classification, and an index to all names included. With a work of such scope, it is important to remember three points: first, read the explanations to be able to use this book to best advantage; second, there are bound to be minor errors in an effort of such magnitude; third, there will also be omissions and new names to be entered, so please contact the compiler with any data that you might have to offer. There will also be differences of opinion on the placement of certain taxa, and in the text there are often comments to the placement of some names.

The compiler, those who have assisted her in any way, and the editors deserve the appreciation of both malacologists and amateur collectors for this carefully prepared work that will soon become indispensable to us all. Many smaller universities, museums, and others involved with malacological collections and their proper curation will find this work their first and foremost source of information on the supraspecific taxa of the phylum Mollusca. This work shows just what a dedicated student of malacology can accomplish given the proper guidance and assistance. And, last of all, this book is priced so reasonably that all who need it can make use of it immediately.

— Walter Sage

Some *Pecten* researchers consider *sulcata* a synonym of *bruei*, but Wagner states that they can be distinguished morphologically. Also, they are geographically isolated. He is preparing a paper outlining the differences.

As an interesting side note, in an article entitled Molluscs collected at the Galicia Bank (Spain)" [*La Conchiglia*, 150-151, Sept.-Oct. 1981, pp. 6-10, by Mosquera and Pedrosa], the authors state regarding *Chlamys bruei*, "...lamellose sculpture that is very irregular and different from one valve to another." Ultimately, one must draw his own conclusions, as there are many gray areas in the taxonomic research on Pectinidae.

**K. bruei** (Payraudeau, 1826), type species of the genus *Karnekampia* Wagner, 1988 - illustrated specimen 15mm from Capraia Island, northwest Italy, in 150-200 meters of water.

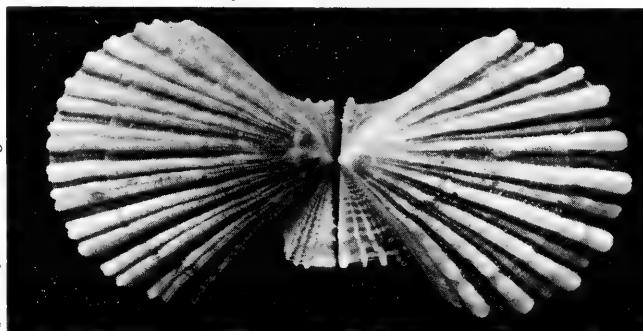


photo by R.L. Goldberg

## ARCHITECTONICIDAE:

### Why Some Sundials Are Shady

by Dr. Rüdiger Bieler

The marine gastropod family Architectonicidae ("sundials," = Solariidae of authors) is relatively small, with only about 100 recent species worldwide, occurring mainly in tropical and subtropical waters. The family has recently attracted much attention from malacologists analyzing the systematic position of this group within the Gastropoda. Classically, the family is grouped in the superfamily Cerithioidea, with groups such as ceriths, turritellids and worm snails. New research shows that while many architectonicid characters are "typical" prosobranch features (such as a large, solid shell into which the animal can completely retract, and an operculum that closes the aperture), other characters are closer or even identical to those of certain opisthobranch groups (e.g., characters of the nervous system, sperm morphology, egg masses, and the peculiar "heterostrophy" of the protoconch, a change of the direction of coiling between the larval shell and the adult shell that leaves the protoconch at an oblique angle, or even "upside down," on the teleoconch).

The Architectonicidae and the presumably closely-related families Mathildidae and Pyramidellidae were thus found not to fit into the textbook classification of Prosobranchia/Opisthobranchia/Pulmonata and, depending on the author involved, were grouped as an independent suborder or order: Heterogastropoda Kosuge, 1966 (also including a number of other families such as Epitoniidae, which is no longer considered correct); Allogastropoda Haszprunar, 1985; or Heterostrophia Fischer, 1885\*).

Architectonicids differ from the other members of the Heterostrophia by having a cone-shaped shell that is considerably wider than high,

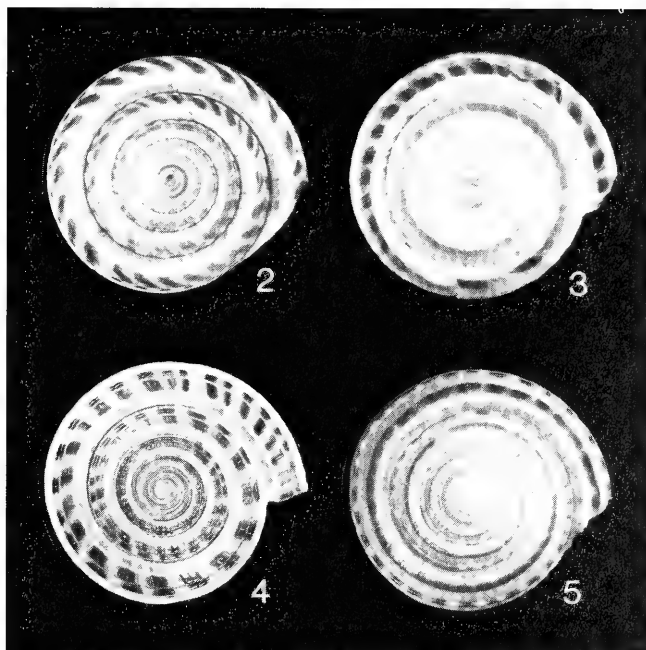
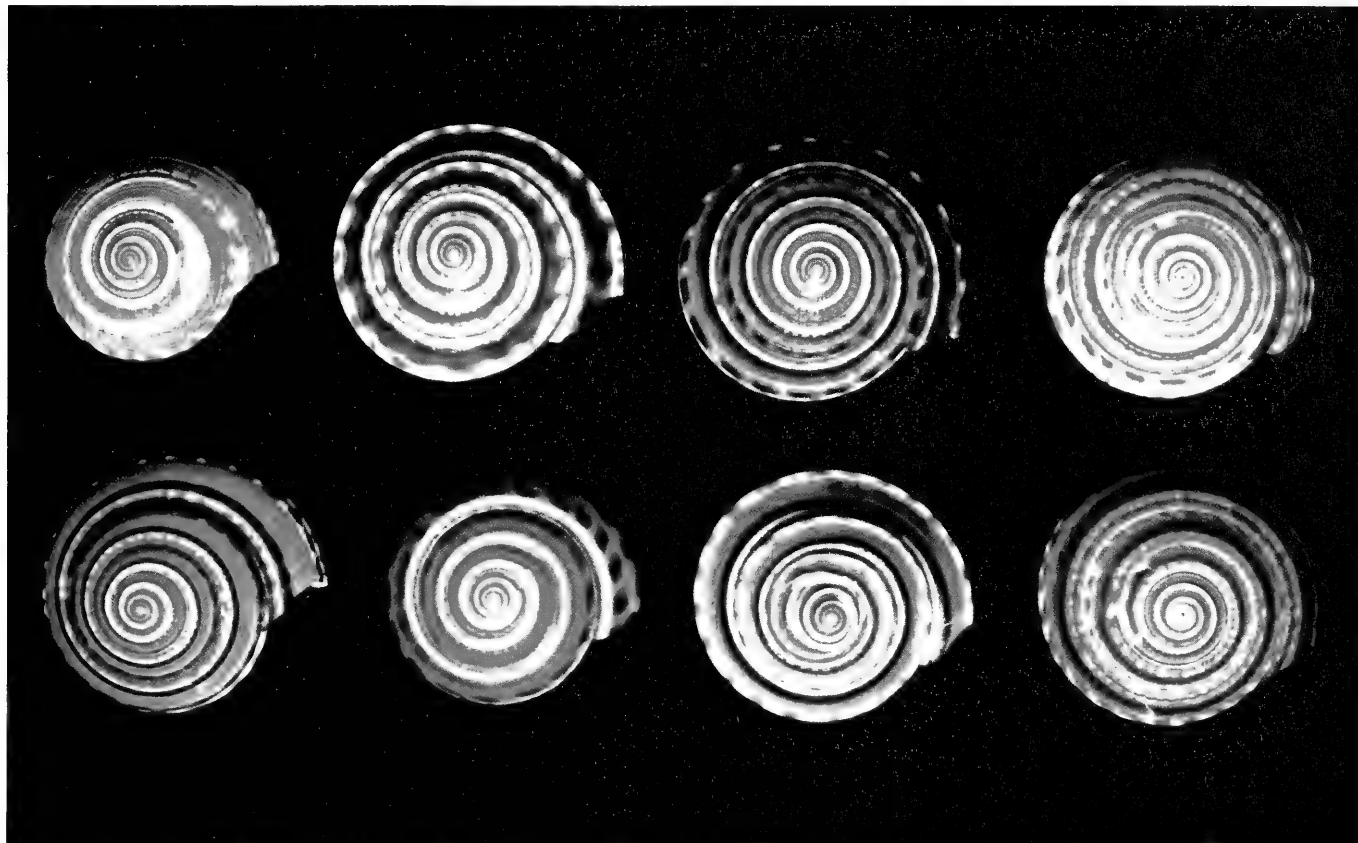


Figure 1: Aberrant specimens of *Architectonica perspectiva* (Linné, 1758) from the collection of the Natal Museum, Pietermaritzburg, Republic of South Africa ('normal' specimen in lower left; loan of specimens courtesy Dr. Richard N. Kilburn.)



Figures 2-5: Aberrant specimens of *Architectonica perspectiva* from the collections of the British Museum (Natural History), London, and the Australian Museum, Sydney (loan of specimens courtesy Kathie Way and Ian Loch). Holotypes of nominal species. Fig. 2: Holotype of *Solarium fuliginosum* Hinds, 1844, and *Solarium maculatum* Reeve, 1848 [objective synonymy, both names based on the same specimen, BMNH 1970026]; diam. 48mm. 35mm [BMNH 1981157]. Fig. 4: Holotype of *Solarium hanleyi* Sowerby in Hanley, 1863; diam. 36mm [BMNH 1980126]. Fig. 5: Holotype of *Architectonica perspectiva fressa* Iredale, 1936; diam. 39mm [AMS C. 60679].

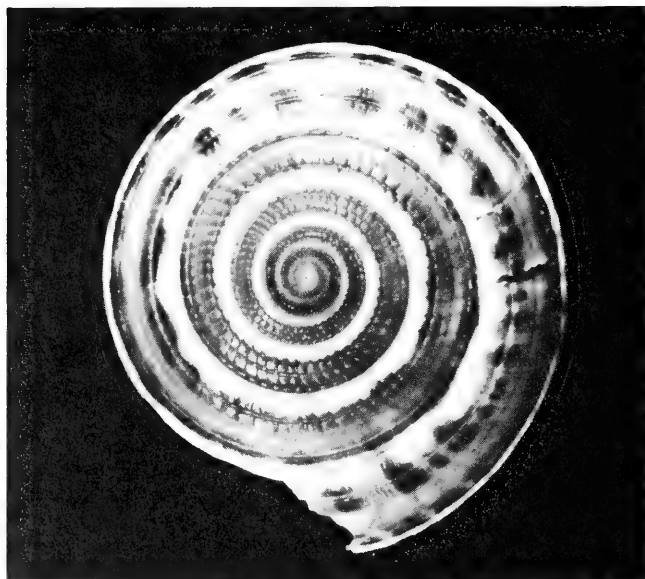


Figure 6: Holotype of *Solarium regium* Hanley, 1862; diam. 30mm [BMNH 1981159].

a wide umbilicus, sculpture of very regular spiral rings intersected by axial grooves or growth lines and, in most cases, a regular color pattern. Of the roughly 50 genera and subgenera introduced for recent and fossil architectonicids, nine are considered valid (Bieler, 1986, 1988), and only four of them, *Architectonica* Röding, 1798 (= *Solarium* Lamarck, 1799), *Philippia* Gray, 1847, *Discotectonica* Marwick, 1931 (= *Acutitectonica* Habe, 1961) and *Heliacus*, Orbigny, 1842 (= *Torinia* Gray, 1842), are well known among collectors.

The group with the largest and most colorful shells of the family, and thus best known, is the genus *Architectonica* itself. Although I, slightly biased, considered members of this genus as among the most attractive of shelled gastropods, even *Architectonica* is not markedly popular among collectors. One reason for this is certainly the lack of specialized literature to sort out the many forms that look "alike." The last monograph treating this group on a worldwide basis was written by Marshall in 1887. Since then, the family has received only cursory treatment in general works, or has appeared in publications dealing with restricted geographic regions (e.g., Marche-Marchad, 1969; Garrard, 1977), or in rather technical papers (e.g., Bieler, 1984). A great many of the published accounts do not help either, since many authors in the past have overlooked (or ignored) the fact that architectonicids have so-called "teleplanic" larvae, veliger larvae that can swim in the world's oceans for weeks or even months and thereby cross great distances (Robertson, 1964; Scheltema, 1971), in the same fashion as known for the family Ranellidae (= Cymatiidae). Because of this type of larval dispersal, architectonicid species have a wide range of distribution. Authors have described a large number of local architectonicid "faunas," with different sets of "species" for each location — for instance, inhabiting Australia, Japan and the African east coast — resulting in a flood of unnecessary names. Robertson (1976, 1979) discussed the wide distribution of some members of the genera *Philippia* and *Heliacus*. I have shown (Bieler, 1984, 1985a, in press) that most Indo-Pacific architectonicids have a continuous range of distribution throughout the Indo-West- to Central Pacific, with a number of species actually reaching the American west coast. The "Hawaiian" species *Heliacus implexus* Mighels, 1845, for instance, is known as *Heliacus codoceae* Rehder, 1980, in the Easter Islands; as *Torinista popula* Iredale, 1936, in Australia; as *Heliacus maorianus* Powell, 1934, in New Zealand; and as both *Heliacus africanus* Bartsch, 1915, and *H. alfredensis* (Turton, 1932) in South Africa. Architectonicids, and especially members of *Architectonica*, display very little variation in sculpture (such as the number and arrangement of spiral ribs) and color pattern within a species. The spiral sculpture can be used to develop a "finger-print pattern" for each species within a group of many superficially-similar forms that will identify a specimen from

South Africa as well as a specimen from Hawaii.

But there is a further, complicating factor that has fooled shell collectors and authors of "new" *Architectonica* species alike. During preparation of my forthcoming monograph on Indo-Pacific Architectonicidae (Bieler, in press), I studied thousands of specimens in many institutional and private collections. It was then that I first became aware of the fact that there were a considerable number of "species" known from only a single specimen. In cases of hard-to-reach deep-water forms this would be no surprise; however, most of these unique specimens came from shallow water.

Closer examination revealed that these holotypes of "rare species" were aberrant specimens, "freaks" that display abnormal shell growth, sculpture or color pattern after a shell repair in their early whorls. In most of them normal shell shape, sculpture and coloration can still be seen on the early teleoconch whorls, before the damage to the shell and the shell-producing mantle tissue occurred (probably caused by a crab or fish attack). Afterwards, the animal was able to restore the shell, but the shell-producing mantle tissue had been harmed to a degree that the species-typical sculpture and/or color pattern could no longer be produced.

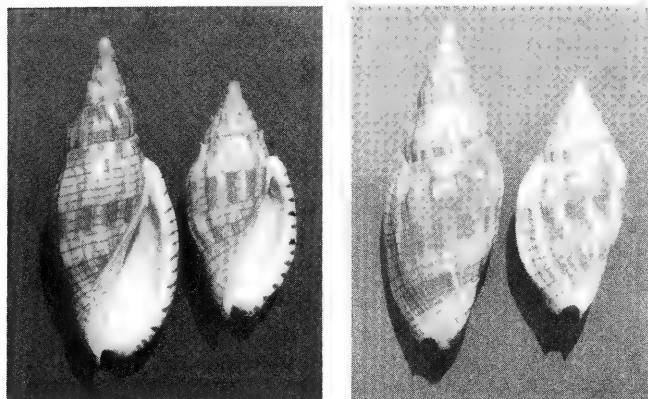
Figure 1 shows examples of such aberrant specimens. The early teleoconch whorls of all these identify them as *Architectonica perspectiva* Linné, 1758. Of the 13 synonyms of *A. perspectiva* (see Bieler 1985b), six (*Solarium fuliginosum* Hinds, 1844; *S. maculatum* Reeve, 1848; *S. cumingii* Hanley, 1862; *S. hanleyi* Sowerby in Hanley, 1863; *A. perspectiva fressa* Iredale, 1936; and *S. perspectiva* var. *heurni* Bayer, 1840) were based on such specimens (see Figures 2-5)! It is difficult, if not impossible, to determine a "suspicious" specimen if the early teleoconch whorls are eroded or — in very rare cases — are already deformed. On my list of "suspects" is the holotype of *Architectonica regia* (Hanley, 1862), a specimen of unique characteristics that shows many signs of an aberrant shell, such as unusual inflation of the shell base and poor definition of spiral sculpture and color pattern (Fig. 6).

Department of Malacology, Delaware Museum of Natural History, P.O. Box 3937, Wilmington, DE 19807.

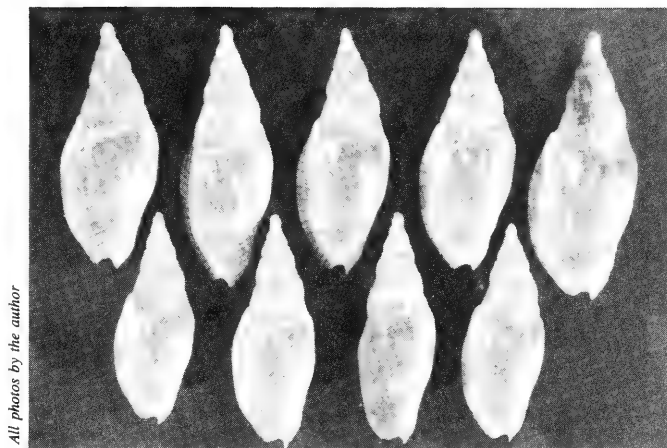
\* The latter is here preferred. Unlike species-, genus- and family-group names, which are subject to the International Code of Zoological Nomenclature, the names of higher categories such as orders and classes do not have to follow priority rules.

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Left: *Lyria cloveriana* - typical form. 91mm. Right: *Lyria cloveriana* - Trincomalee form. 67mm.



All photos by the author

Specimens of *Lyria cloveriana* - typical form.

## NEW FORM OF *LYRIA CLOVERIANA* - TRINCOMALEE FORM

by Harald Douté

The December 1987 issue of *American Conchologist* presented, for the first time, the picture of a very different specimen of *Lyria cloveriana* Weaver, 1963. The photo was accompanied by questions regarding this mollusk's taxonomic status and showed some conchological details unusual for that species.

Dorothy Janowsky of Mal De Mer Enterprises, and Walter Sage, American Museum of Natural History and author of the original article, very kindly provided me with all available data. A few weeks later, I was invited by Andre Weber of Walchwil, Switzerland to visit his shell collection — easy to understand my delight and sur-

prise when, among Mr. Weber's incredible specimens of *L. cloveriana*, I found one almost indistinguishable from the shell pictured in the December 1987 issue.

Mr. Weber, a frequent visitor to Sri Lanka and expert on the island's shell fauna, was very well informed about this shell — he obtained it from a native diver from Trincomalee who was himself familiar with the location and bathymetrical details of the habitat of this species. Extensive material of *L. cloveriana* with exact habitat data permits differential comparison between shells of *L. cloveriana* from the east coast (Trincomalee) and the south-west coast of Sri Lanka.

Readily apparent differences between the two forms are shown in Table 1 below, constructed by comparing my Trincomalee shell with 15 specimens of the typical form. No significant differences are noted in color pattern or in sculpturing of the shell, except for the two coronations.

The two forms differ in neither columellar plications nor in the coloration of the aperture. Larval whorls are identically colored.

A comparison of range and habitat for the two forms in Table 2 below illustrates clear-cut differences also.



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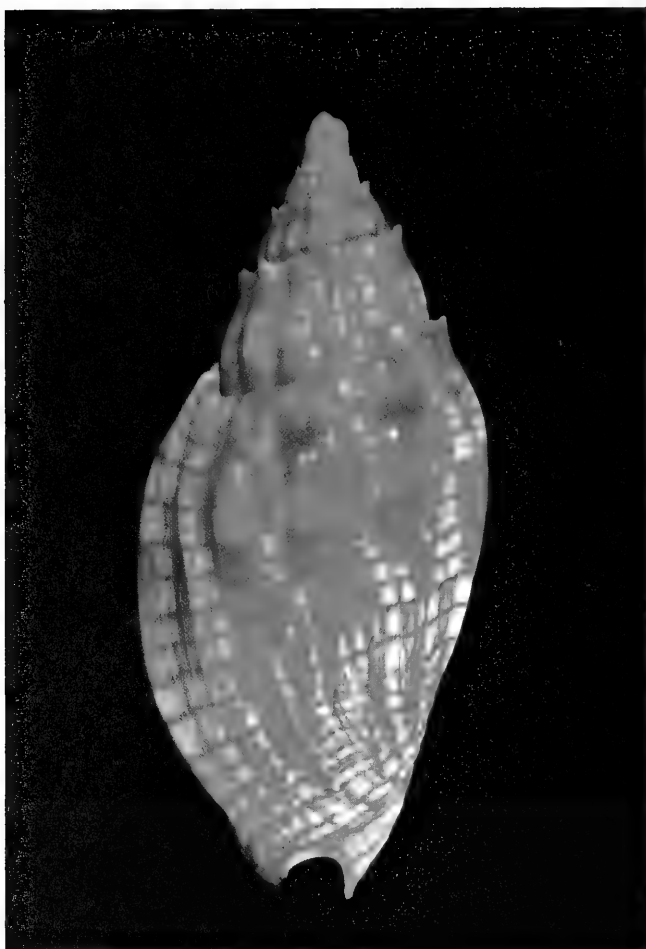
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TABLE 1

	Trincomalee form	Typical form
Length (L)	76.7mm - 67.0mm	98.0mm - 66.0mm
Width (W)	38.0mm - 31.0mm	36.0mm - 19.0mm
W/L Ratio	2.16	2.66
SpH*/L Ratio	29.85%	36.55%
Number of larval whorls	about 2.25	2.50 - 2.75
Teleoconch whorls	about 4	about 4.75
Description	Small but distinct sutural ramp with sharp, <b>hollow</b> upward-pointing coronations at outer margin; coronations becoming obsolete on second half of last ramp.	Sutural fold with <b>solid</b> tiny dents or spines, disappearing on the last whorl.
Body whorls	Ventricose Anal notch shallow, relatively wide.	Convex-elongate Anal notch deep and narrow.

\* spire height





*Lyria cloveriana* - Trincomalee form. 67mm.

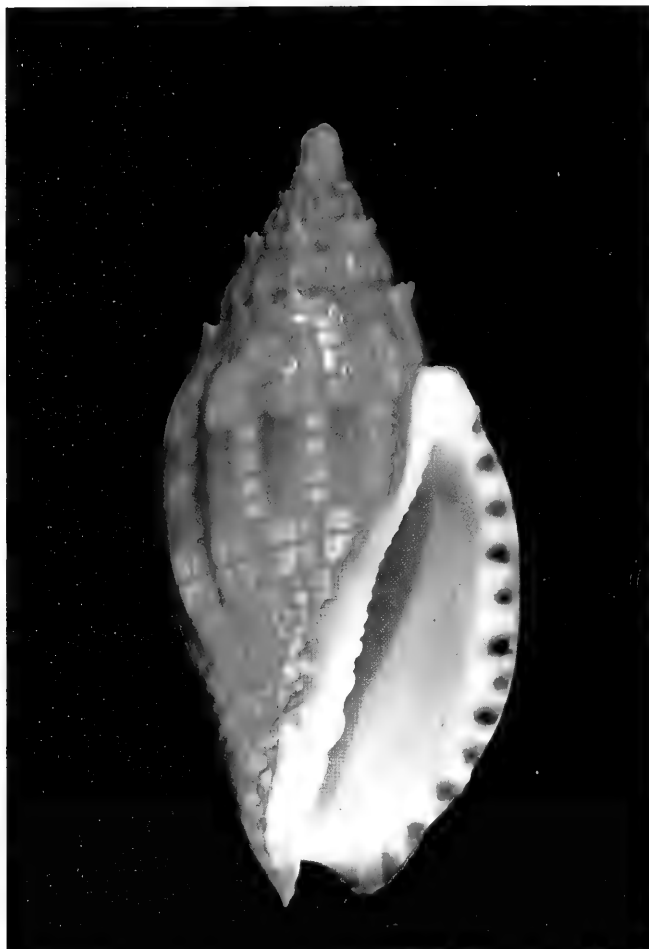


TABLE 2

	Trincomalee form	Typical form
Habitat	Sandy, silty bottom found in about 38m	Rocky bottom (basalt) bordered by sand flats, 38-40m
Range	Sri Lanka east coast from Nilaweli, north of Trincomalee (Red Rocks) to Batticaloa.	Sri Lanka south-west coast, from Tangalla to Ambalangoda, about 30 km north of Galle.
	A wider range cannot be excluded for either form.	

Notes: *Lyria cloveriana* dwells together with lobsters; consequently most specimens are taken in lobster traps. It is worth note that almost every specimen bears repair scars.

*L. cloveriana* is active at night, as are many species of Volutidae.

An operculum is present.

#### CONCLUSION:

Conchological differences do not suffice to separate the two forms specifically. To propose the status of an infra-subspecific ecomorph, or a geographical subspecies, we lack sufficient data on morphological variability, ecology, anatomy and zoogeography. We, therefore, should treat it provisionally as a local form from the Trincomalee area.

I would like to offer my best thanks to Dr. Korn of the Natur Museum of Coburg, West Germany for his most valuable advice.

#### ALABAMA SHELL CLUB FORMED

Former COA Executive Board member Glen Deuell of Huntsville reports that Alabama now has a shell club. Glen is president of the fledgling **North Alabama Shell Club**, Travis Payne is vice-president, and Glen's wife Marion is secretary. Barbara Elliott (Cleveland Shell Club) is the fourth charter member. Ten interested shellers showed up at the second meeting in January. When will that new shell club pin appear, Glen?

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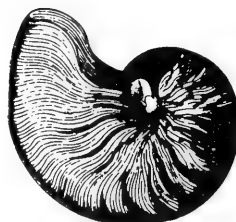


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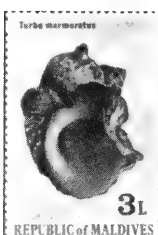
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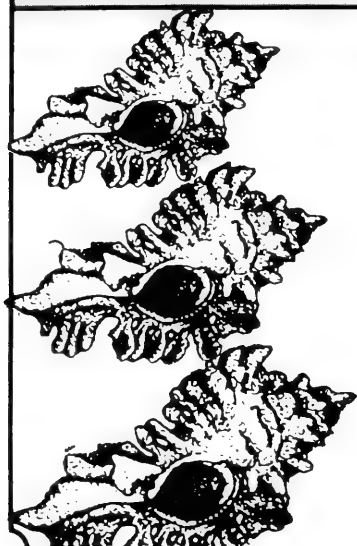
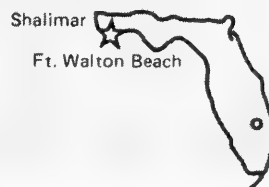
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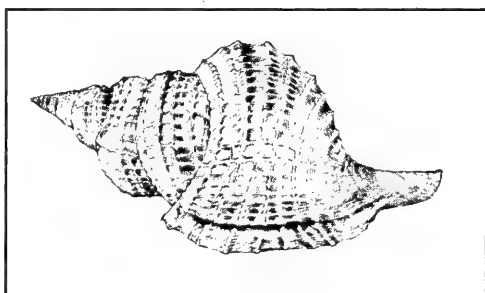
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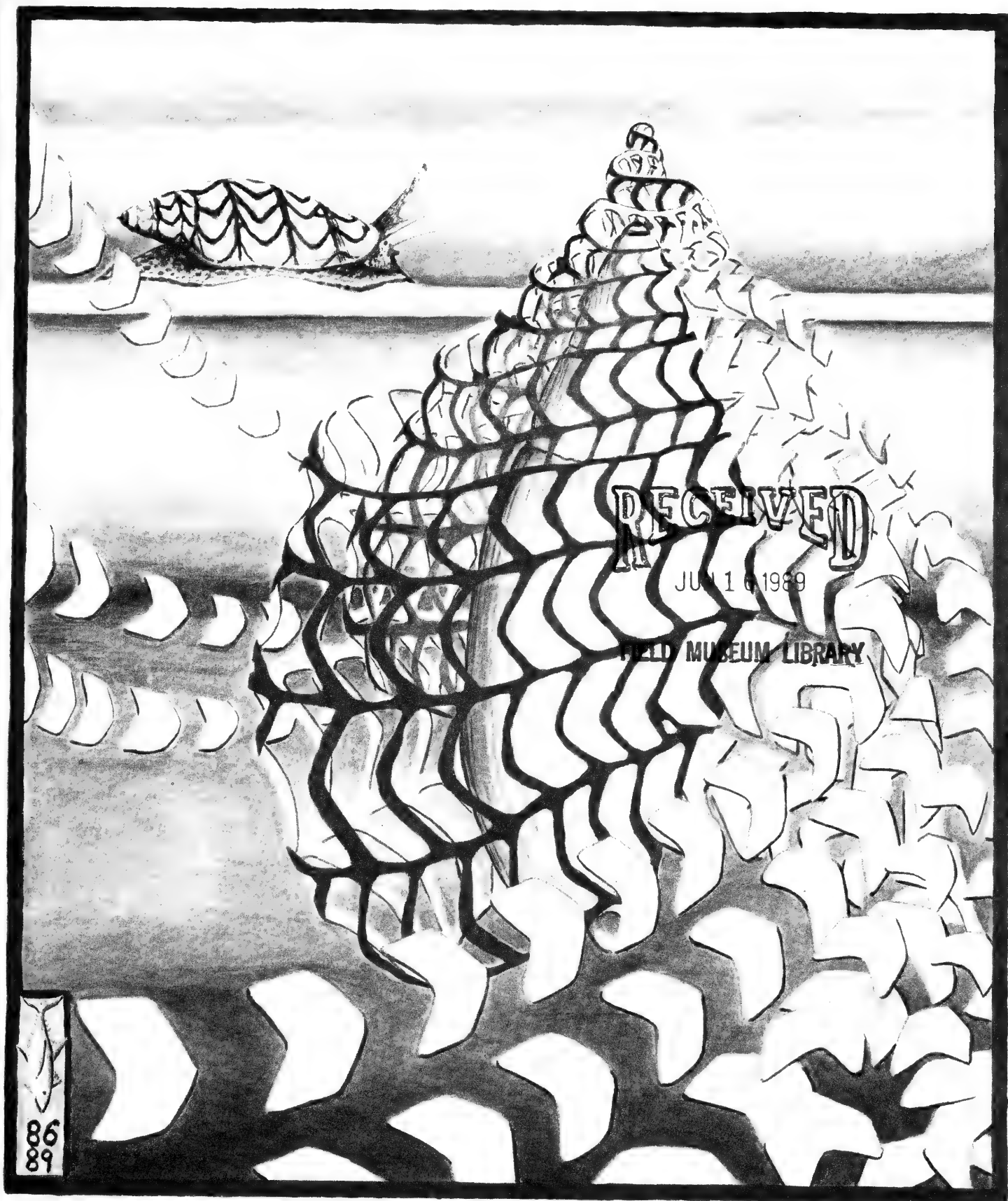
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QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 17, NO. 2

JUNE 1989



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Cover: John Timmerman's brush and ink exploration of the fascination implicit in *Volutoconus bednalli*'s pattern. "Is the zebra white with black stripes . . . or black with white stripes?"

## PRESIDENT'S MESSAGE

Allowing for the vagaries of publisher and post, this item, written in early spring, should reach you before our San Diego Convention. San Diego can claim to be "America's Favorite City" with considerable justification; and the San Diego club members are wonderful, friendly people. To show my precognitive skills, I'm sure our first convention on the west coast in seven years will be a tremendous event, and we would like to see you ALL there!

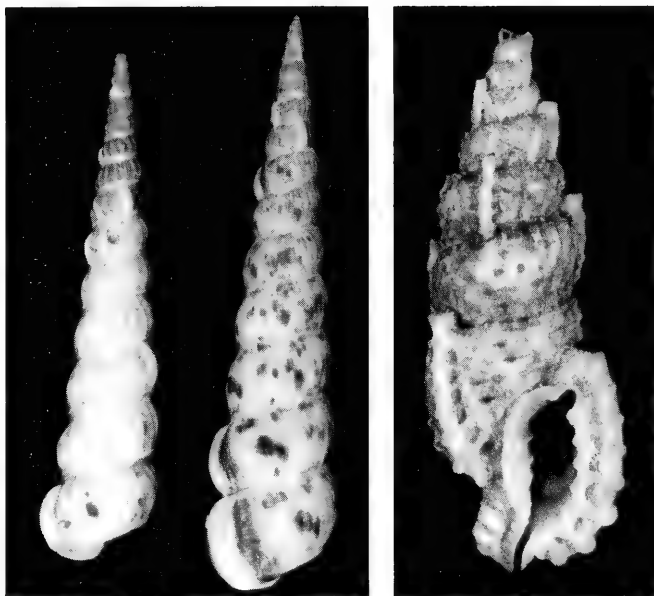
"Serendipity" is that lovely word which means you have found something pleasant that you weren't looking for. Serendipity could be a synonym for conchology. What may start as a childhood distraction of collecting a few beach shells grows into a lifelong hobby and study. We are a fortunate few who have found the joys of conchology. There are all too few national or international organizations like COA or publications such as **American Conchologist**. Our membership continues to climb, with new applicants almost daily. If you have not renewed your membership, please do so now! If you have misplaced

your renewal form, a reminder is being sent to all those who have forgotten to renew for 1989; or you may write Mr. Walter Sage, Treasurer, whose address is listed on this page. Don't miss out on the best in conchology.

Our members are as varied as the various forms of mollusks. We come from many nations and backgrounds. We have a hobby in which we can trust implicitly 99.99% of our fellow shellers. However, be warned that there are one or two individuals, **NOT** COA members, who may use COA membership lists as a basis for initiating trades or exchanges, and who, frankly, are not to be trusted. If you don't know an individual, or are suspicious, **CONTACT YOUR COA CLUB REPRESENTATIVE**. If you know of unscrupulous people who trade on our trust, provide that information to your COA representative. The organization cannot be a clearinghouse for "approved" dealers or traders, but your COA representative is a source of information on many aspects of the organization and the hobby as a whole. For traders as for purchasers, if you don't know the person who wants you to send him expensive shells prior to receiving anything from them, **CAVEAT EMPTOR!**

Thank you for the honor of being your President during the past year, and all the best to the officers who will be elected at our annual convention. See you there!

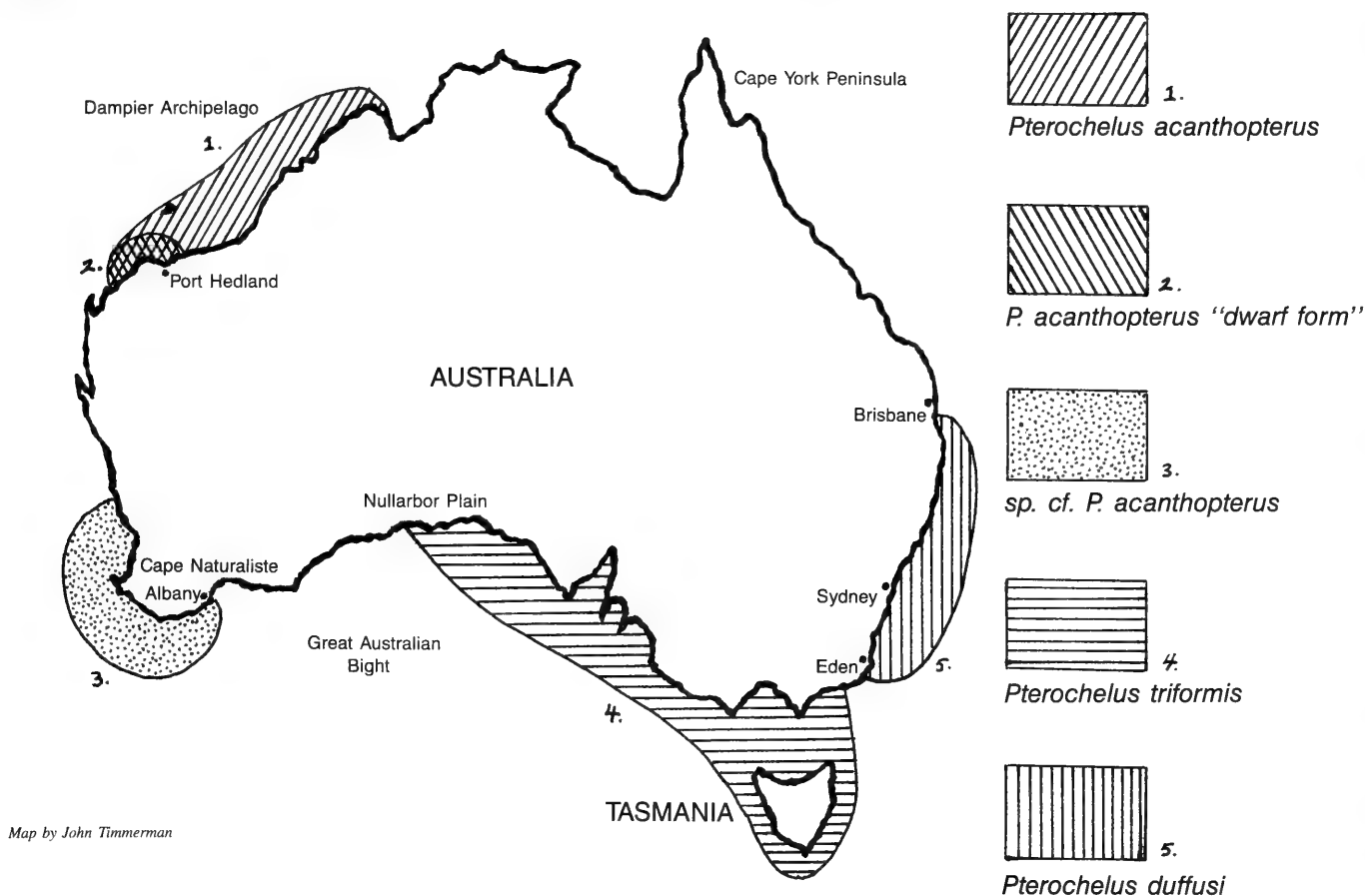
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## No More Mysteries

by Charles Glass and Bob Foster

In the December issue of Volume 14, No. 4, page 65, 1986, under the title, "Mystery Shells," we pictured a — to us — unknown Epitonium from Balicasag Island, Bohol, Philippines (51.2mm & 58.1mm). Helen DuShane, the Epitonium authority, has kindly supplied us with the identification: *Fragilopalia nebulodermata* Azuma, 1972. Also under the title, "Mystery Shell," in the March issue of 1984, Vol. 12, No. 1, page 11, we pictured a 28mm shell from Kwajalein collected by Jeanette Hammon, now Jeanette Johnson. Dr. A. Beu from New Zealand informed us that it was a species of Cancellariidae, subfamily Plesiotritoninae, soon to be described by him. It is now officially *Plesiotriton mirabilis* Beu & Maxwell, 1987. For the benefit of recent subscribers, we think it is worthwhile republishing the illustrations of these most interesting mollusks. We are impressed by the knowledge out there among our readership: every "mystery" of identification we published has been solved!



## DISTRIBUTION OF THE SPECIES OF *PTEROCHELUS* JOUSSEAUME, 1880

by Emily H. Vokes

It was Christmas Eve. At the Australian Museum in Sydney there were Christmas parties being held in several different departments. With food and drink and festivities all about, serious work was definitely hampered. But Winston Ponder, Curator of Mollusks, and I began a discussion as to the validity of the several species of *Pterochelus* that occur around the perimeter of the Australian continent. I contended that there are only two species: *P. acanthopterus* (Lamarck, 1816) and *P. triformis* (Reeve, 1845). But Winston insisted that *P. duffusi* Iredale, 1936, is a valid species and the three forms are completely distinct geographically.

To settle the argument, we decided then and there (remember, it is 4 p.m. Christmas Eve, and we've a few drinks behind us, to boot) to sort the museum material by locality — and see what the results were. This we proceeded to do, and it was no small task. The Australian Museum has the finest and most extensive collection of Australian molluscan material in the world. There are four large museum drawers filled with specimens of *Pterochelus* having precise locality data from all around Australia.

Like Santa's elves, we frantically shuffled specimens into geographic order — eastern Australia, southeastern, southern, southwestern, western, northwestern. Then we stood back to admire our handiwork. Santa would have been proud of us. And, sure enough, Winston was absolutely right. The various geographic regions do have different forms, as shown in the map given here.

On the eastern coast from just north of Brisbane, southern Queensland, south to Eden, New South Wales, at the southeastern corner of the continent, one finds only the delicate, long-spined form named *P. duffusi* by Iredale (fig.1). This is a small shelled species,

the maximum height about 50mm. A good color illustration is given in Radwin and D'Attilio 1976, pl.15, fig.5).

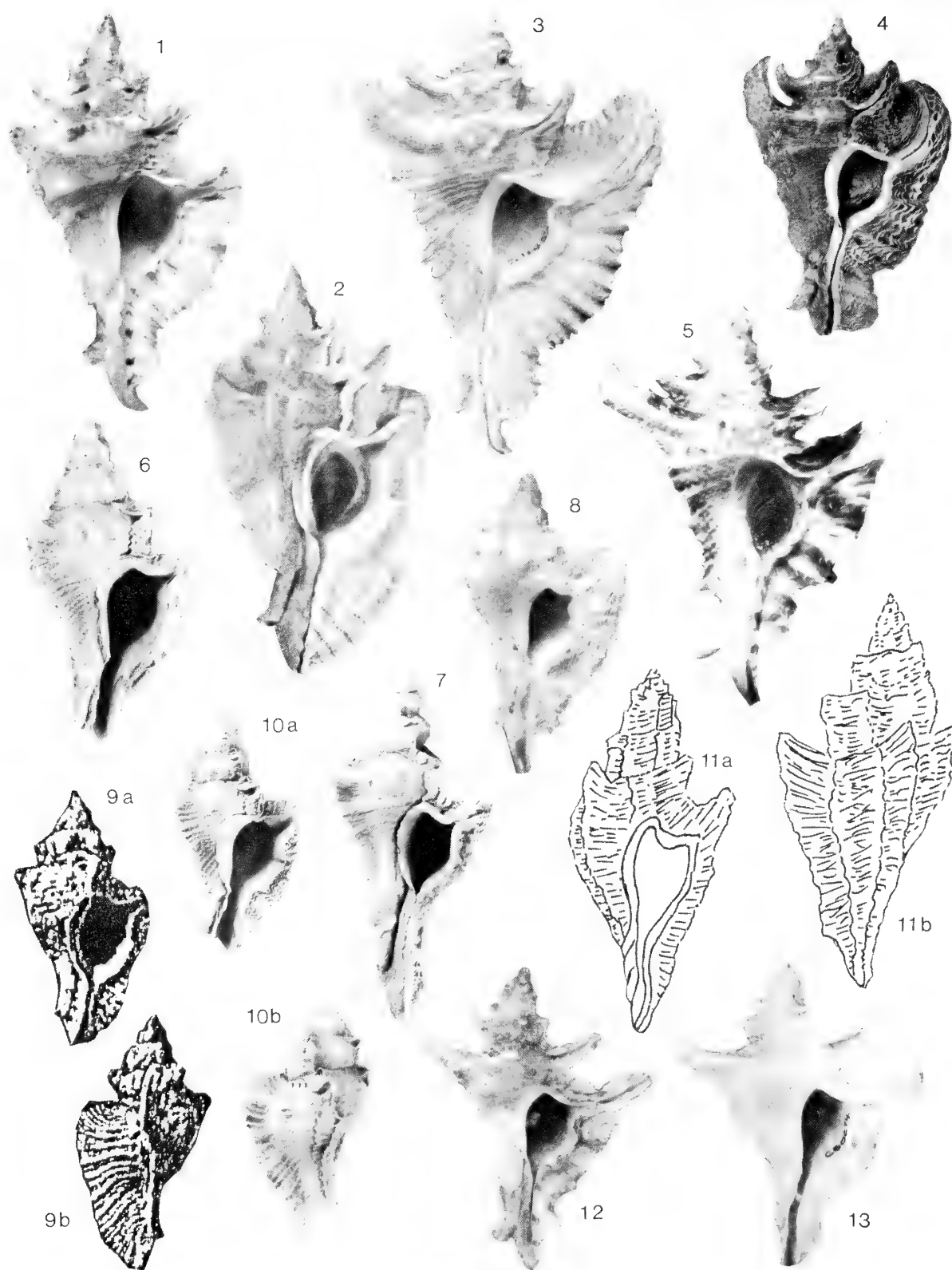
In the southeastern portion of the continent, including the island of Tasmania, the delicate *P. duffusi* is replaced by the much heavier and larger *P. triformis* (fig.2). There seems to be a small gap between the two species — they do not overlap in range, so far as known. This is a distinctive species, lacking the elongated shoulder spine of the other two forms. It is larger than *P. duffusi*, the normal adult size being about 70mm. The color is a more uniform tan (as shown in Radwin and D'Attilio 1976, pl.15, figs. 6,7, and Wells and Bryce, 1986, fig. 291) to sometimes a dark brown.

Based upon the Australian Museum collections, *P. triformis* does not occur farther west than about the South Australia-Western Australia line. The specimen shown in Radwin and D'Attilio, pl.15, fig.7, from Albany, far to the west of this line, is probably the result of fishing boats operating out of Albany but working in South Australia. Wells and Bryce (1986, p. 88) also state that *P. triformis* extends as far west as Cape Naturaliste, which is slightly north of the southwestern corner at Cape Leeuwin. It is possible that the collections in the Australian Museum are incomplete and that the species *P. triformis* does extend farther west than we think. However, it is also possible that the identification of an undescribed species — here called *P. sp. cf. acanthopterus* (fig.5) — as *P. triformis* is the basis of the report. Although I examined the collections of the Western Australian Museum, it was before the discussion with Ponder in Sydney and I did not study the distribution of the species critically. (Obviously a good excuse for another visit.)

Certainly, as we sorted the various specimens, we wound up with a handful of a puzzling form which occurs around the southwestern

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EXPLANATION OF FIGURES: 1, *Pterochelus duffusi* Iredale; height 46mm (X 1½). 2, *Pterochelus triformis* (Reeve); height 55.4mm (X 1½). 3, *Pterochelus acanthopterus* (Lamarck); height 85.2mm (X 1). 4, *Pterochelus acanthopterus* "dwarf form"; height 37.9mm (X 1½). 5, *Pterochelus* sp. cf. *acanthopterus*; height 50.1mm (X 1½). 6, *Pterochelus triformis* (Reeve); Roe Calcarene, Pliocene; height 37.8mm (X 1½). 7, *Pterochelus acanthopterus* (Lamarck); Roe Calcarene, Pliocene; height 40.5mm (X 1½). 8, *Pterochelus westralis* (Ponder and Wilson); Australian Museum C. 921000 (paratype); height 26.9mm (X 2). 9, *Pterochelus elegantula* (Harmer); holotype, after Harmer; Coralline Crag, Pliocene; height 29mm (X 1½). 10, *Pterochelus ariomus* (Clench and Perez Farfante); Harvard Museum of Comparative Zoology 164734 (holotype); height 22.6mm (X 2). 11, *Pterochelus helenae* (Verrill); holotype, after Verrill; height 50mm (X 1½). 12, *Pterochelus phillipsi* (Vokes); Santa Barbara Nat. Hist. Mus. 22190 (holotype); height 29.4mm (X 2). 13, *Pterochelus duffusi* Iredale; Australian Museum C.606 74 (holotype); height 28.6 (X 2).

corner of Australia, and which seems to be between *P. duffusi* and *P. acanthopterus*. This would make a great intergrading form if only it occurred on the northeastern corner of the continent. It may, in fact, be the remains of a much wider distribution of the ancestral form of *P. acanthopterus*, which in the Pliocene did reach as far south as the Great Australian Bight.

Today, *P. acanthopterus* (fig.3), the largest of the species, with a maximum height over 80mm, is confined to northwestern Australia, from the Hammersley Range to the Western Australia-Northern Territory line. But in the Pliocene, it occurred together with *P. triformis* in the area that is now the Nullarbor Plain. In the vicinity of Eucla at the Western Australia-South Australia line, there is a remarkable exposure of a Pliocene, or possibly early Pleistocene, marine molluscan fauna that is clearly much more tropical than the one living today in the adjacent ocean. Both *P. triformis* and *P. acanthopterus* are there (see figs. 6,7), as well as a large tropical-appearing *Chicoreus* named *C. lundeliusae* by Ludbrook (1978, p.140, pl.16, figs.1)8) and a *Haustellum* species very like *H. multiplicatus* (Sowerby, 1898), which was named *Murex (Haustellum?) darraighi* by Ludbrook (1978, p.143, pl.15, figs.19, 20). Today, *H. multiplicatus* has nearly the same range as *P. acanthopterus* (actually a bit more extensive, reaching as far east as the Cape York Peninsula). So the tropical fauna of northern Australia was clearly present on the southern coast during this warmer time period.

In addition to *P. acanthopterus* in the more tropical northwest, there is another species that has been called, in the literature and in collections, *P. acanthopterus* "dwarf form" (fig.4). Rumor has it that Winston Ponder and/or Emily Vokes are going to name this new species, but neither of them is planning any such thing. Nevertheless, it is a valid new species and **someone** should give it a name. The distribution is the most limited of the species yet discussed, being only the Port Hedland and Dampier Archipelago area of northwestern Australia.

There is only one other species of *Pterochelus* in Australia — the most recently described *P. westralis* Ponder and Wilson, 1973 (fig.8), which is confined to the west coast of Western Australia from Bunbury to Northwest Cape (Wells and Bryce, 1986, p.88, fig.290). This all white species is most closely akin to *P. triformis*, having a small shoulder spine and a more nearly rounded varical flange.

Other than these species in Australia, are there any other species of *Pterochelus* in the world today? Certainly the group has a long geological history, beginning in the Eocene of Europe, Australia and Java. There are numerous species from the Oligocene of Europe, the United States, and Australia, as well as the Miocene of New Zealand. Curiously, there is one species reported from the Pliocene Coralline Crag of England — *Murex elegantula* Harmer, 1918 (fig.9). If it were not for this unexpected occurrence in the later fossil record of the Atlantic area, I would have an even harder time than I do accepting the western Atlantic species *Murex ariomus* Clench and Perez Farfante, 1945 (fig.10), based upon a single specimen taken off Hollywood, Florida, in 50-60 fathoms. One is immediately inclined to dismiss it as some sort of mis-located shell. There is one problem with this solution, however; the specimen was taken live — the dried animal and operculum are still with the holotype in the collections of the Museum of Comparative Zoology, Harvard University. Almost identical in shape to small specimens of *P. triformis*, the shell of *P. ariomus* is totally white, unlike *P. triformis*.

The problem is not helped by the description of another species named *Murex helenae* by Verrill (1953, p.10, text figs., reproduced here, fig.11). Although Verrill stated that he had two specimens (type and paratype) taken from a fishtrap (hermit crabs?) in 50-75 fathoms off Montserrat, Lesser Antilles, the size (50mm), the color ("pale ochreous or ochreous orange"), and the (admittedly awful) illustrations all point to misplaced specimens of the Australian *P. triformis* (the shell is described as having "a low raised vertical rib between the varices," suggesting *P. triformis* rather than *P. acanthopterus*, which usually has two or three nodes). But the coincidence of having three different specimens of *P. triformis*, one of them alive, all being collected in the western Atlantic, strains credulity — and what about that Pliocene one in England that is almost identical to *P. ariomus*?

Therefore, it is possible that we have not one but two species of *Pterochelus* in the western Atlantic. I am admittedly very dubious about *P. helenae* but less so concerning *P. ariomus*. Even though no one (to my knowledge) has ever found a second specimen of *P. ariomus*, I am not ready to dismiss it as a "ringer."

On the Pacific coast, we have a similar problem that is of even more concern to me, as I am the one who named it *Pterynotus (Pterochelus) phillipsi* (fig.12) in 1966. Once again, the unique holotype was taken live in 100 fathoms off the coast of southern California. The shell is very like that of *P. duffusi* (compare the holotype, fig.13) and it is not inconceivable that the animal "hitch-hiked" on a ship across the Pacific. It is a long trip, but a possible one, as there is not the fresh water of the Panama Canal, which makes the case for western Atlantic transport more far-fetched. As much as it hurts, I am willing to consider *P. phillipsi* an intruder until someone finds a second example.

The taxon *Pterochelus* Jousseaume, 1880, is usually cited as a subgenus of *Pterynotus* Swainson, 1833, to segregate those species with a notable spine at the shoulder. When Ponder and Wilson described *P. westralis* (1973, p.395), they observed that the new species had characteristics of both *Pterynotus* (scabrous shell ornamentation) and *Pterochelus* (open shoulder spine), and they concluded: "it is quite probable that *Pterochelus* is not worthy of recognition even as a subgenus." But the persistence of this shoulder spine from the Eocene until the Recent seems to me a valid reason for separation.

A number of the species referred, in the past, to *Pterochelus*, typified by "*Typhis*" *angasi* Crosse, 1863, and "*Typhis*" *zealandica* Hutton, 1873, have more recently been separated off as members of *Prototyphis* Ponder, 1972, and *Ponderia* Houart, 1986, respectively, leaving *Pterochelus* to be used for only the few species living today in Australia and, possibly, on the eastern and western coasts of North America. Since the discovery of *Pterynotus phyllopterus* (Lamarck, 1822) living in the Lesser Antilles, as the American representative of a line thought to be extinct in North America since the early Miocene but still surviving in Australia [*Pterynotus bednalli* (Brazier, 1878)], I am willing to accept such disjunct distribution.



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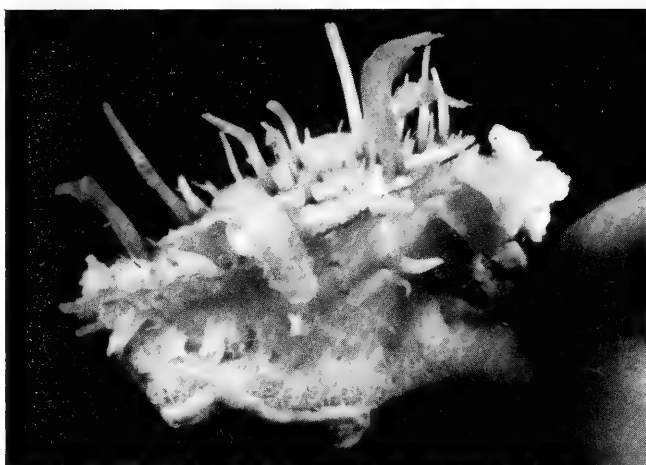
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### Xenophora Becomes Bilingual

With the appearance of its 45th issue, *Xenophora*, the Bulletin of the French Association of Conchology, has begun publishing its major articles in English as well as French. The January-March 1989 number features, in this groundbreaking issue, an article by Dr. Patrice Bail on the Genus *Voluta* in all its tangle of forms, subspecies and species, accompanied by eight pages of beautiful color photos of these perplexing and fascinating shells by Michel Lariven and Christian Niquet.

For information about membership in the Association Française de Conchyliologie and subscription to *Xenophora*, write President and Director of Publication Christian Niquet, 1 Impasse Guéméné, 75004 Paris, France.



### Shells Caught in Strange Predicaments

"Well, shut my mouth!": This *Spondylus* cf. *imbutus* Reeve, from Visayan Philippines, had it lived, would probably have had some severe problems, as one of its spines curved down and under and would have made it virtually impossible for the critter to open its valves. [Photo by Glass & Foster, The Abbey Specimen Shells.]

## WANDERINGS OF AN ITINERANT MALACOLOGIST III My Highest High

by Donald R. Shasky, M.D.



*Periplicaria clarki* (M. Smith, 1947).

In my last article, I told you that I would describe the highest high I have ever had in my 33 years of pursuing Panamic mollusks.

I will diverge, this time, from island hopping and tell about intertidal collecting in the vicinity of Panama City, Panama. There is no doubt in my mind that this area is one of the most exciting spots on our planet for intertidal collecting. During extreme tide, there is over 20 feet difference between high and low water. Many molluscan species, rarely, if ever, collected intertidally, will from time to time be found on the sand, on mudflats or on rocky reefs here. Some of these species include: *Natica lunaris* (Berry, 1964), *Cymatium tigrinum* (Broderip, 1833), *Epitonium statumiatum* (Sowerby, 1844), *Pterynotus pinniger* (Broderip, 1833), *Bifurcium bicanaliferum* (Sowerby, 1832), several turrids and a number of cancellariids.

Collecting in Panama is extremely fatiguing. During the best tides, there are usually two low tides a day, for five days. We like to be out for at least two hours before low tide and one hour after the tide turns. Early in the week, the lows are usually at a decent time, around 9 or 10 in the morning, and about the same at night. As the week progresses, the nighttime lows get later and later, which means that we don't get to bed til 3 a.m.

It was February, 1975 and I was anxious to get back to Panama

\* 734 W. Highland Ave., Redlands, CA 92373

because I had missed the trip in 1974. This time, my wife, Urshi, was accompanying me for her first intertidal collecting trip. Waiting for us were my old friend Captain Richard Calaway, Ann Marti, and other friends.

The week started out bad and went downhill from there. I also went downhill from quiet, to solemn, to morose. It was the worst collecting trip I could imagine. My friends began to wonder what was wrong with me. They even asked Urshi if we were having marital problems.

On the last night at about 1:45 a.m., I was on my hands and knees crawling along on the mud around the rocky reef at Venado Island when everything changed.

The tide was on its way in and time was running out when, just a few inches in front of me, something popped up that set off a bizarre chain reaction. First I grabbed the shell. My first reaction was to scream. My second reaction was to scream some more. The third reaction was to scream, only much louder. Without question, everyone knew that depression had finally taken its toll, and that it was time to get some rope and tie me up. As I look back after thirteen years, I think that my action was appropriate and that I would do it again. Si! Oui! Da! Absolument! For in my hand was the second live *Periplicaria clarki* (M. Smith, 1947) ever collected. Ann Marti had collected the first one and had given it to me on permanent loan. As far as I know, these are still the only two live-collected specimens ever taken.

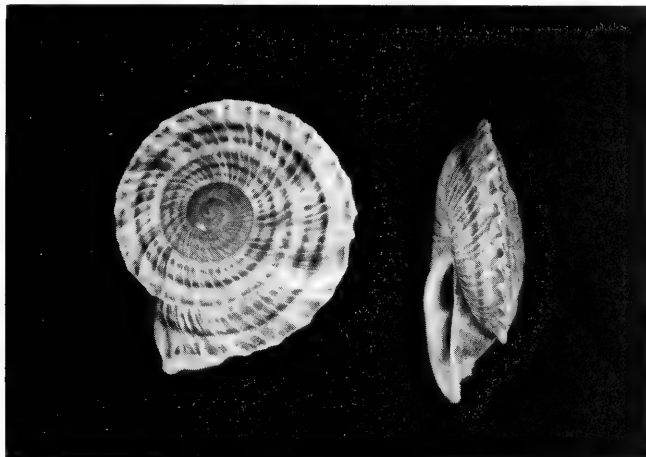
This one shell made my whole trip.

Before I end this ramble, I will mention one other shell from Panama. The minute *Platycythara curta* (Dall, 1919) was described from a single specimen dredged in Panama Bay in 53 meters. It measures 2.3mm. Two others have since been found, both intertidally in Panama Bay. One was taken by the late Dr. Anthony Ferreira. His specimen is in the Los Angeles County Museum. The other is one that I collected.

Next time we will depart from the Panamic Province for the Indo-Pacific. I will talk about what I consider to be the most beautiful *Trivia* and tell you how to find it.

# LITERATURE: Correction of an Illustrated Philippine Land Shell and Notes on the Genus *Obba*

by Richard Goldberg



While referencing *Shells of the Philippines* by Springsteen and Leobrera, I came across a mis-illustrated species of land shell, here correctly pictured. The species in question is *Obba rota* (Broderip, 1841) [p.351, pl.99 no.23].

*Obba rota* is a unique species in the genus, characterized by a peculiar fluted, pie crust-edged peripheral carina, and oblique, radiating axial ribs. Two other distinct characteristics of this species are occasional oblique white streaks, and three narrow brown bands above and two on the base, the outermost, above and below, always on the carina. The fluted carina gives the outer band the appearance of being interrupted. The shell is umbilicate and depressed; its lens shape and basal lip tooth are common in the genus *Obba* though. Some specimens exhibit a flattened spire; more often, the spire is as convex as the base.

Both the elevated oblique ribs and the fluted carina vary considerably throughout its range, to include reduced basal ribs and little or no fluting on the carina. Shell No. 23 in *Shells of the Philippines* also has no fluting, but *O. rota*'s carina is always sharp-edged, and there are always some riblets, or at least the rugose surface found in all *O. rota* variations.

The specimen illustrated here can be considered typical of *O. rota*. A variety of *Obba listeri* (Gray, 1825) [+ *costata* Semper, 1877] is the only species that could possibly be confused with it. Superficially similar to the flat-topped flute-less forms of *O. rota*, the *listeri* form comes from northern Luzon, a few hundred miles north of *O. rota*'s range.

The description for *O. rota* in *Shells of the Philippines* pertains somewhat to this species, but I take exception to the discussion of the carina and the markings. I believe the specimen illustrated in the book is probably one of the many forms of *Obba planulata* (Lamarck, 1822), always less acutely carinate than the similar *O. listeri* (I also question the illustration of *O. planulata*, but will save that for another time).

The authors state that *O. rota* comes from Masbate Island off the southwest tip of Luzon, but I have not found a record for this more northern locality, outside *O. rota*'s recorded range. The distribution is confined to the central and southern Philippine Archipelago, with reports from the Visayas Islands — Bantayan, S. Leyte, Bohol, Camotes (north of Bohol), Panglao, Siquijor — as well as eastern and southern Mindanao, Basilan Island, and many of the smaller satellite islands throughout this range. The variations seem to be localized. Hidalgo (1891) illustrated a rather distinct dwarf variety from the Visayas Islands with a flattened spire and a very convex base. Bartsch (1918) introduced two subspecies — *perezi* (Bohol) and



*panglaoensis* (Panglao) for localized varieties, but they, like many of Bartsch's Philippine subspecies, have no validity. *O. rota* was first illustrated by Ferrusac & Deshayes (1820) but was not described until 1841 by Broderip. A syntype (one of several specimens of equal rank on which a species is based) was designated for this species from the Cuming collection with the locality of Siquijor.

*Obba rota* is a tree-dwelling species living on mid-level trunks of forest trees, as with many species of *Obba*, but often can be found in leaf litter on the ground.

The genus *Obba* Beck, 1837 is a member of the Camaenidae, and has a distribution in the Philippines, Celebes and Ceram. The distribution limits of individual species are not well known. Bartsch (1933) monographed the genus from Mindoro Province, where species variation seems to be greatest. The type species is *O. planulata*. For the 28 species in the genus, 166 names can be found in the literature referable to *Obba* species and variations!

*Obba rota* exemplifies the variability in this genus, and points out that well-localized data is an important key in helping understand and identify Philippine, as well as world-wide non-marine shells.

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## NOTICE

All mail for the National Capital Shell Club should, in the future, be addressed to Mique Pinkerton, 1324 Westmoreland Drive, Warrenton, VA 22186.





The Author within seconds of throwing a clam overhand. Note airborne clam, upper right.

## AIRBORNE MOLLUSKS:

### The Case of the Funny-Shaped Frisbees or Clam Flying Introduced and Explained

by John Timmerman

You say you've spent the whole day at the beach, hunting for the rare Long-spined Northern Junonia, and all you have to show for it is a bad sunburn, a lot of noseem bites and a pile of those ever-abundant bivalves, *Spisula solidissima* (Dillwyn, 1817) and *Mercenaria mercenaria* (Linne, 1758)? Or, worse yet, you've met this beautiful blonde (Gloria, 1985), but her macho boyfriend kicked sand in your face? Don't weep, gnash your teeth or wade out to sea. All is not lost. You can dispel the stress and disappointment of the day, build muscle and find a new hobby, all with a few easy lessons. How? Fly a clam!

Yes, thrown correctly, many bivalves will perform like an airplane wing, and win for you gasps of admiration from blondes on the beach, glances of awe and envy from their macho, erstwhile sand-kicking boyfriends. Clam flying might even get your picture in a magazine.

The basic requirements for a flyable bivalve are that it be relatively round and disk-like, and have a good heft. Some non-flyable bivalves include *Ensis directus* Conrad 1843; *Cyrtopleura costata* (Linne, 1758); and *Donax variabilis* Say, 1822. Flyable bivalves include that pile of

surf clams and quahogs at your feet. In fact, you can fly clams with lots of things — fossils, naiades, chunks of wood, stolen hubcaps, whatever. This is one of the nicest things about the sport: clam-flying isn't just for the beach — you can indulge your hobby in lots of places (although chucking Coquille shells in a French restaurant is kind of tacky).

Two basic grips work best for launching a clam (see photos). The first is a back-hand throw, good for light-weight species like *Spisula*. Grasp the clam between your index and middle fingers or between the index finger and thumb, and throw, like a Frisbee, with an outward swing and snap of the wrist. The second method, an overhand throw, is much like that of a baseball pitcher, with the index finger near the apex of the clam, and the thumb and other fingers supporting the shell. This method produces a higher speed of launch and works best on heavy species such as *Mercenaria*.

Clam flying works best in calm air or with the wind. Which makes sense. With the wind, longer flights are possible since the clam will ride extra distance on the air current itself. (With the right wind, who knows what is possible? Would you believe a U-2 Spy *Spisula*?) Nor is there as much banking problem since the wind speed subtracted from the throw speed makes the actual speed of the clam through the air slower. (Say what!? Read on!)

When flying clams you may have a problem with them banking left or right, depending which hand you use for throwing. This is caused by the higher speed of the clam in the early part of its flight. (Pay attention, now — this gets technical for the next paragraph or two!) At lower speeds the center of lift corresponds to the center of gravity around which the clam rotates. When the clam is traveling faster, the center of lift moves toward the trailing edge, causing the leading edge to pitch down (see diagram 1). Because of the spin (gyroscopic effect), this force is directed approximately 90° to one side, and the clam banks to the left or the right, taking out lifeguard chairs, braining seabirds, or downing low-flying planes in its path. To compensate, (and avoid damage suits) throw the clam at an angle opposite to the direction that the shell tries to bank (diagram 2). (It banks in the same direction if you throw it with the same hand, so the direction of compensation is constant.) If this doesn't work, you may have offended Byssus, God of Clam-flying, or you might even have chosen too light a clam.

Launched properly, the clam will roll, during the early phase of flight, into a level mode. As it slows down the center of lift shifts toward the actual center so the tendency to roll diminishes. On paper it sounds easy, but in practice it helps to know why the roll happens. Each clam is different from the next, so, just when the blonde is about to decide you're kind of cute after all, your next throw will roll over completely and crash, despite your best effort. Compensate too much

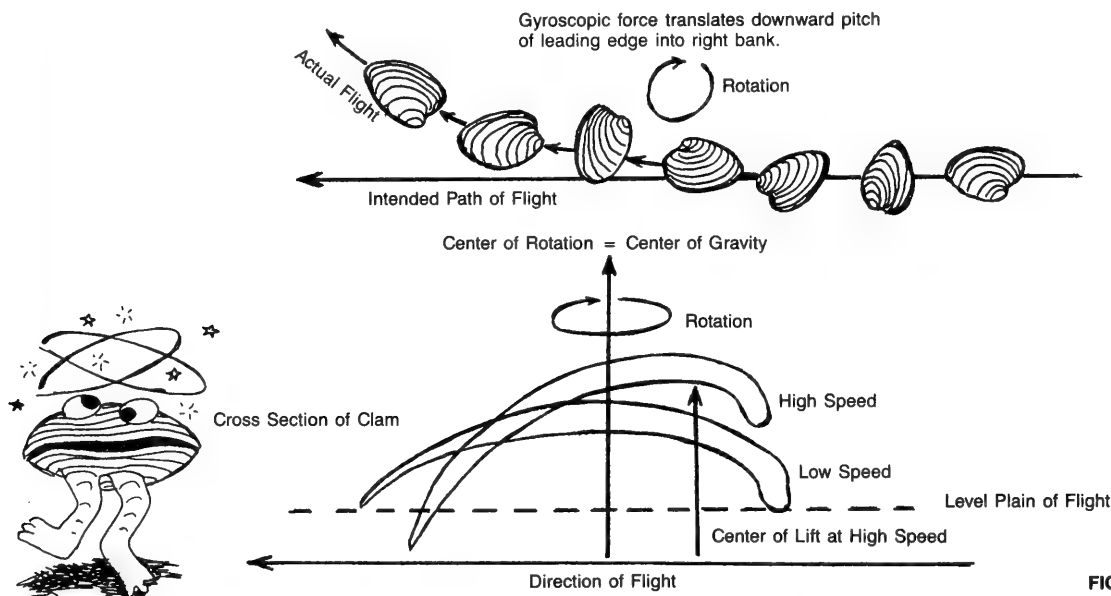
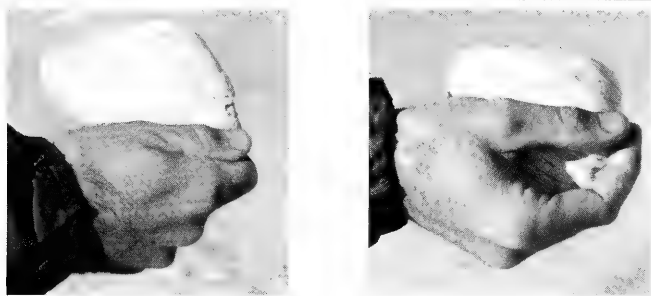


FIGURE 1.



Alternate grips for a backhand throw, *Spisula solidissima*.

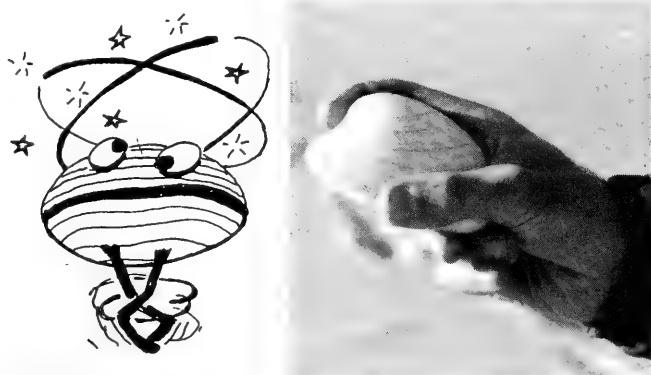
and the clam will fail to level out completely before slowing down. Throw well and the clam will roll into a beautiful level flight and continue on its course until losing momentum and settling gracefully to earth or water. This flight theory assumes there aren't cross winds — they can cause the best of throws to go astray.

Throwing clams into the wind, like spitting into same, is an unpredictable and dangerous activity that I don't recommend. But if you are determined to pursue the science of the sport through any weather, I offer a word of warning. Never take your eyes off that clam, and stay away from friends, relatives, picture windows, new cars or anything else you shouldn't be throwing rocks at. Clamshells have a way of turning into boomerangs or sharp-edged unguided missiles that shear off to wholly unexpected directions and distances. They can leave a heck of a ding in your brother's new BMW, believe me! And my great Aunt Fifi used to have this really nasty little dog. . . well, that's another story.

As a general rule it's best to restrict all clam flying to remote areas. Fly 'em where you find 'em — out over the ocean is good. But if admiring spectators gather to praise the prowess of your throwing arm, it's best to be churlish, collect all flyable clams and stalk off to a less populous locale. Or make it a seasonable sport — fly clams in winter.

There are dozens of species I've known and flown. I fly what ever is available at a given locale, but you could pack in a supply of your favorite fliers if you like. Some naiades are excellent fliers as are some fossils, including those heavy pectens from Miocene deposits. But be careful what you use from your own collection. Flown *Bivalvia* have a distressing habit of breaking in half or of disappearing altogether in a POOF! of  $\text{CaCO}_3$ , and there you are, out a brand new *Somalipecten cranmerorum* Waller, 1987. Those BMW fenders can pack a nasty wallop, can't they? And, before you even try it, I'll tell you straight off, Spondylus don't fly properly anyway. . . You'll need to trim their spines off before they fly at all well.

So the next time you are on a beach, frustrated at the scarcity of American Three-Horned Golden Cowries, cursing the abundance of those *Spisula* clams, remember the grotty things are useful for recreation. These days, I'm always disappointed if I can't find clams at the beach.



Grip for an overhand throw, *Mercenaria mercenaria*.

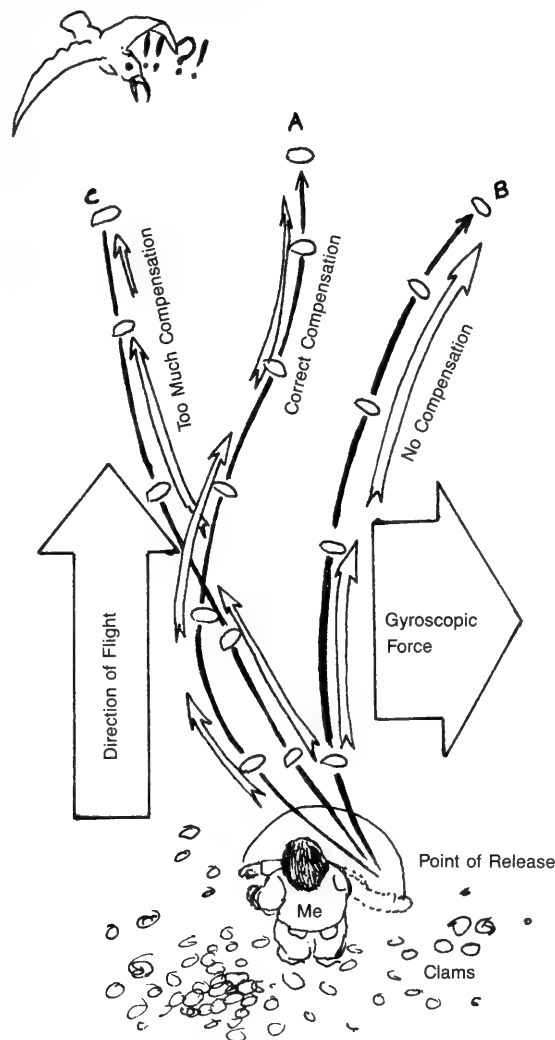


FIGURE 2.

### Compensating for Gyroscopic Roll

## WHAT'S NEW IN MOLLUSCAN STUDIES?

by R. Tucker Abbott

### South Africans Study Diet of Midas' Abalone

That gorgeous red abalone from South Africa, *Haliotis midae* Linnaeus, has been utilized as a food for man since prehistoric times. Today, an annual \$2,000,000 worth of its meat is fished from the off-shore kelp beds of the South Western Cape Province. Imagine the piles of shells awaiting dealers!

Two biologists, Barkai and Griffiths, of the University of Cape Town, have just completed extensive research on "An Energy Budget for the South African Abalone, *Haliotis midae*." They found that 63% of the energy content of the nighttime kelp consumption is lost as feces. A further 32% is expended on respiration. The remaining 5% goes toward growth and reproduction.

The poor use of the kelp and the high energy in the feces is due, in part, to the toughness of the *Ecklonia* kelp. However, the huge production of feces by many thousands of abalones makes the surrounding waters ideal for bivalve filter feeders. Other kelp grazers include the sea urchin, *Parechinus angulosus* (Leske). The article, appearing in the *Journal of Molluscan Studies*, vol 54, pp. 43)51, has 51 related research references in its bibliography.



*Periglypta reticulata* (Linne, 1758).

**Class BIVALVIA (Linne, 1758)**  
**Superfamily VENERACEA (Rafinesque, 1815)**  
**Family Veneridae (Rafinesque, 1815)**

by G.H.J. Cox

The family Veneridae is much overlooked among collectors, and yet, from the standpoint of color, beauty, form and diversity, the Venus Clams are among the most advanced of the bivalves. The Veneridae are found in most seas, both tropical and cold water, with the warm waters of the tropics containing the most exotic, colorful and beautifully sculptured species. Most of these tropical species live in muddy or clean coral sand; in the colder waters, they live in clean sandy bays and muddy-sand estuaries. Some, like *Venerupis saxatilis* live, attached by a byssus, in rock crevices or holes vacated by rock borers.

Species can be found from the lower shore to fairly deep water. If you live near a coast with sandy bays, most of your local species can be obtained easily by digging or raking in the sand at low tide or by SCUBA diving in deeper water. Many fresh dead shells can be found after storms, washed up on the beach intact, because the hinge is strong in this family.

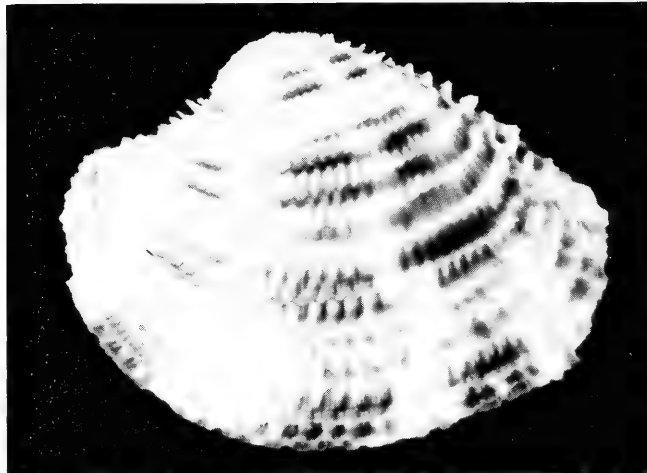
If you don't live near the coast and have to buy and exchange, none of the shells are more than a few dollars each, and eighty percent should be available from various dealers.

We have, in British waters, sixteen species, one or two of which can match the beauty of the tropical species. Most of these are easily obtainable from any sandy bay. The most spectacular of our shells is *Callista chione*, a handsome oval shell, smooth and polished, golden brown with darker rays, often pink tinged. Young specimens have rows of spots of various vivid colors instead of rays, or they have three broad white rays. They are usually up to 90mm, but at one place in Devon, I've found single valves well over 100mm washed up on the beach. Hours of searching and dredging have failed to reveal where they live.

The shell is porcelainous, whether large or small, and is likely to have a polished, highly finished appearance. The shape is mostly ovate or cordate (heart shaped), inequilateral, with beaks well in front of the midline. Sculpture may be radial or concentric or both.

The ligament is external, on a special platform or nymph. Additional nymphs resembling teeth may complicate the already complex hinge which consists of three cardinal teeth in each valve, one or more of which may be grooved, or bifid. In some genera, there is

\*G.H.J. Cox, 8, Chapel Pond Drive, North Warnborough, Odiham, Hampshire, RG25 1EF, England, is a longtime member of the British Shell Collectors' Club, and a bivalve aficionado whose exhibit on Veneridae won the 1981 COA Trophy at the British Shell Show.



photos: Philip R. Dance

*Antigona lamellaris* (Schumacher, 1817).

an anterior lateral hinge tooth in the left valve, fitting into a lateral socket in the right valve.

The pallial line has a more or less deep sinus reflecting the habit of burrowing below the surface of the sea floor. The inner margin of the shell is either smooth or finely crenulate.

The classification of this family has been subject to continual debate and rearranging for some years, and still needs a lot of work done on it. This very large family — some 500 species — is usually divided into twelve subfamilies, several of which have even been accepted by some recent workers as having full family rank. These subfamilies, along with some of the more common genera and species are:

VENERINAE Rafinesque, 1815. Sculpture usually both radial and concentric. Anterior lateral tooth present in left valve.

*Antigona* Schumacher, 1817. *Antigona lamellaris* Schumacher, 1817. Moderate size, up to 60mm. sculptured with erect, lamellate concentric ribs; interstices with regular, rounded striae; ligament moderately short; beaks recurved, not touching; lunule moderately large, heart-shaped. Adductor scars about equi-sized; pallial line with deep sinus; internal margin crenulate. Exterior cream to fawn, with brown radiating streaks. Lunule dark brown. Interior white flushed with pink. Moderately uncommon, ranging west from the South Pacific.

*Periglypta* Jukes-Browne, 1914. *Periglypta reticulata* (Linné, 1758). Moderate size, up to 75mm, solid, ventricose and trapezoidal in outline, sculptured with concentric ridges and radial ribs, nodulose at point of intersection; prominent recurved beaks; ligament mostly internal; broadly heart-shaped lunule, elevated in center. Posterior adductor muscle scar only slightly larger than anterior one; pallial line with deep V-shaped sinus; internal margin minutely crenulate. Exterior white or cream, with irregular, occasionally chevron-shaped dark brown markings. Interior pale creamy yellow; hinge line reddish-brown. Moderately common in the tropical Pacific.

*Venus* Linné, 1758. *Venus verrucosa* (Linné, 1758). 50-60mm. Thickly rounded, ovate, inflated, with prominent umbones. Strong concentric ridges, warty on anterior and posterior ends. Fine radial ribs give slightly cancellate texture. White or brown; white inside, sometimes with pale purple or brown on posterior adductor muscle impression. Dark brown periostracum. Common; boreal, Mediterranean, West and South Africa.

CIRCINAE Dall, 1896. Equivalve, subequilateral; pallial line nearly entire. Cardinals smooth or faintly grooved; anterior laterals present. Surface sculptured, usually with dichotomous radial ribbing on some part of the shell.

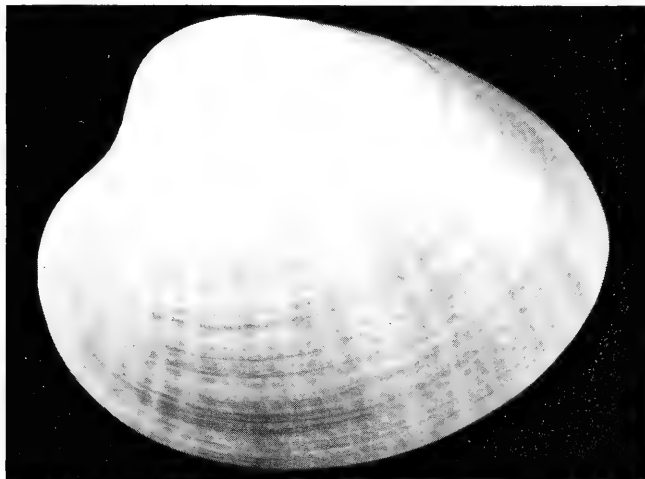
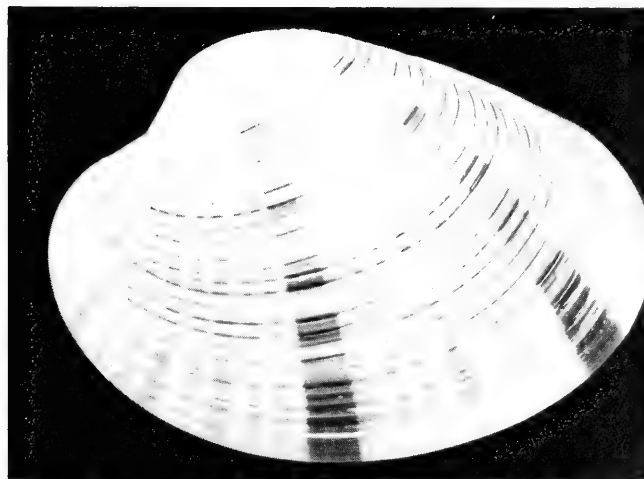
*Circe* Schumacher, 1817. *Circe corrugata* (Dillwyn, 1853). 35-45mm. Thick, rounded-trigonal, compressed. Umbonal area with wavy, oblique ridges. Inner margins crenulate. Moderately glossy. Yellowish, flushed with pink or pale purple, covered with fine brown lines forming tent shapes; lines thickest on lunule and escutcheon. Inside yellowish white, flushed with pale purple centrally. Indo-Pacific (Indian Ocean); common.

*Gafrarium* Roding, 1798. *Gafrarium pectinatum* (Linné, 1758) To 50mm. Numerous strong radial ribs which bifurcate on posterior and anterior slopes. Whitish, with concentric purplish-brown blotches. Inside white with purplish-brown in umbonal cavities. Indo-Pacific, Japonic; common.

*Gouldia* C.B. Adams, 1847. *Gouldia cerina* (C.B. Adams, 1845). 5-7mm. solid, trigonal; beaks centered, high, very small; long lunule bounded by impressed line; no escutcheon. Reticulate sculpture, with fine concentric ribs predominating; radial ribs stronger anteriorly. White, uncommonly with purplish or brownish streaks. Common from shallow water to 96 fms; West Indies, Brazil, Bermuda, North Carolina.

SUNETTINAE Stoliczka, 1870. Ligament in a deeply excavated escutcheon; shell surface smooth or with concentric ribbing.

*Sunetta* Link, 1807. *Sunetta scripta* (Linné, 1758). 40-65mm. Rounded-trigonal, compressed; well-produced anterior end; steeply sloping, slightly arched anterior

*Callista chione* (Linné, 1758).*Callista erycina* (Linné, 1758).

slope. Strong smooth concentric ridges with narrow, deep grooves between. Creamy with small purplish brown blotches often arranged in zigzag pattern. Inside white stained with purple; purple inner margins. Common; Indo-Pacific. *Sunetta aliciae* (A. Adams & Angas, 1863). 25mm. Solid, thick, ovately trigonal, compressed, equivalve, subequilateral; ventral margin rounded, posterior end more so. Microscopic regular fine striae; visible concentric growth lines. Ligament external, deep in escutcheon. Muscle scars deeply impressed; pallial line strong; sinus oval. Hinge broad and flat with strong teeth. Glossy, purplish; wavy lines and darker rays in varying widths. Interior white to pale yellow; flesh-colored in umbonal region. Tasmania, South Australia.

Other genera: *Meroena* Jukes-Browne, 1908.

MERETRICINAE Gray, 1847. Elongate-ovate; sculpture subdued or wanting; hinge with cardinal teeth tending to radiate, anterior lateral teeth in right ventricle commonly flanked with denticles above and below.

*Tivela* Link, 1807. *Tivela mactroides* (Born, 1778). 25-38mm. Solid, inflated, trigonal. Surface smooth; beaks central, prominent. Rayed and clouded with brown. West Indies to Brazil. Subspecies *byronensis* (Gray, 1838) ranges from Baja California to Peru.

*Tivela stultorum* (Mawe, 1823). 75-150mm. Ovate, heavy, moderately inflated, glossy smooth, with weak growth lines. Single sharp thread on posterior end. Large ligament. Brownish-cream, usually with wide mauve radial bands. Periostracum thin and varnish-like. Many unnecessary names. Common; San Mateo Co., CA to lower California.

*Transennella* Dall, 1883. *Transennella pannosa* (Sowerby, 1835). One of the larger *Transennella*. Faintly grooved exteriorly; relatively thick; umbones high; 90° apical angle. Yellow to brown. Western South America. *Transennella simpsoni* (Dall, 1902). 15-25mm. Glossy, rounded, trigonal; smooth except for fine growth lines. Inner margins of valves creased by microscopic, oblique threads. Pallial sinus long. Cream with 2-3 weak-brown radial bands; interior flushed purple. Common, North Carolina to S.E. Florida, Bahamas, Brazil.

*Meretrix* Lamarck, 1799. *Meretrix meretrix* (Linné, 1758) to 60mm. Glossy, rounded, trigonal; posterior margin longest, and somewhat flattened; Umbones large, inflated, nearly touching; surface with weak concentric folds. Creamy white, sometimes mottled brown, with yellow-brown umbones and a purplish posterior slope; interior white. Tropical Pacific.

Other genera: *Aeora* Conrad, 1870; *Bassinaria* Marwick, 1928; *Grateloupia* Desmoulins, 1828; *Meretrisa* Jukes-Browne, 1908; *Tivelina* Cossman, 1886; *Eomeretrix* Turner, 1938.

PITARINAE Stewart, 1930. Beaks generally near the anterior end; three cardinal teeth not tending to radiate; the left anterior cardinal tooth not smaller than the broadly wedge-shaped medial cardinal, but joined to it at the upper end.

*Pitar* Römer, 1857. This is a very large genus with many exotic shells in tropical seas. *Pitar fulminata* (Menke, 1828). 25-40mm. Rounded-ovate, inflated; large umbones; very large lunule; numerous prominent growth lines. Whitish, with yellow-brown spots and zigzag or triangular markings often forming interrupted radial bands. Transatlantic, Caribbean; common.

*Pitar lupanaria* (Lesson, 1830). 50-80mm. Moderately thick ovate-trigonal; weak or strong concentric ribs or lamellae, terminating posteriorly in a series of long or short spines. White tinged with violet; dark purple blotches between spines. West Mexico to Peru.

*Pitar dione* (Linné, 1758). 25-50mm. Similar to the above, but smaller. Purple-white with two rows of long spines at the posterior end. Commonly washed ashore in the West Indies. Mexico to Panama and the West Indies.

*Callista* Poli, 1791. *Callista erycina* (Linné, 1758). One of the loveliest of the Veneridae. 70-100mm. Broadly ovate, moderately inflated; posterior segment much longer than anterior. Strong flattened ribs have narrow ribs between them. Cream, fawn and brownish orange with darker and paler brown rays. Indo-Pacific.

*Callista erycina* form *lilacina* (Lamarck, 1818) from Western Australia is a form with more lilac colored rays than orange.

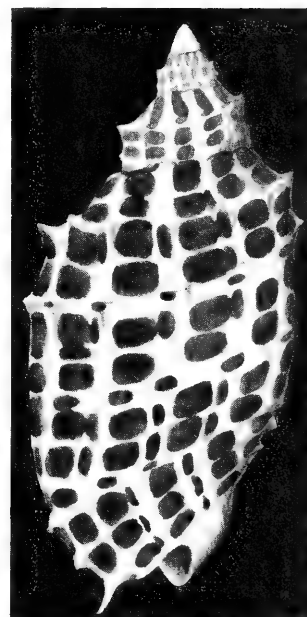
*Callista bardwelli* (Clench & McLean, 1936) is another similar but uncommon species from Western Australia.

(To be concluded in September)

### The "Back Issues Mystery" — SOLVED!

With help from Phyl Pipher, Rich Goldberg, Thomas Hale and Clair Stahl, the confusion about the numbering of early issues of the COA BULLETIN has been cleared up. There were two different #7's, one #8, and no #9. (Back in those days, we had no volume numbers, and used consecutive numbers from year to year.)

If you would like to expand or complete your library of COA BULLETINS/AMERICAN CONCHOLOGISTS, for issues prior to 1987, write to the Piphers, 1116 N Street, Tekamah, NE 68061; for 1987 and after, write to COA Membership Chairman Bobbie Houchin, 2644, Kings Highway, Louisville, KY 40205.



Images and text by John Timmerman

### *Voluta echinatum* Baloney, 1989

This elegant shell is the fabled Northern Spined Junonia sought after by the jaded shell collectors of northern beaches. This magnificent gem specimen (106mm) was dredged in deep waters off New Jersey in the vicinity of Hudson Canyon by the trawler "Pipe Dreams." No live specimen has ever been known to wash ashore. Its habitat is in the imagination of the artist.



## NUKU HIVA, THE MARQUESAS HENUA ENANA (TERRE DES HOMMES)

by Aurora Richards



View of Taheo on a rainy day.

photos by the author

You are in for the great shock of your travelling career if you visit the Marquesas after enjoying the colorful show at the Polynesian Cultural Center on Oahu. There you'll be dazzled by exotic scenery and handsome islanders bedecked with flowers, singing and moving gracefully to the languid twang of the ukulele or the haunting beat of the tamouraa. You may even be convinced that "This is Polynesia," as you watch the finale — a Hollywood-style Polynesia where life is a sinecure, lounging on luminous beaches, making music, fun and love. But you won't experience the true Polynesia until you see the Marquesas. . . .

Nuku Hiva lies about 1600 km northeast of Tahiti. Not so long ago, the only way to get to those remote and unspoiled islands was a long trip on a rare cruiser or an epic on a copra boat. Nowadays, for \$700, Air Tahiti will fly you from Papeete to Nuku Hiva every Saturday: a three and a half hour flight one way into strong headwinds, less than three hours return the next week. In August, the skies are packed with clouds, but half an hour after take-off, you will have a breathtaking view of Atoll Mahini, starboard of the craft.

Nuku Hiva: landing at "Terre Déserte," a barren knoll bulging out of the ocean, you step into the terminal building, a boisterous place full of the shrieks of brown children wearing crowns of sandalwood shavings, the latest fashion. In Tahiti, a small band welcomes tired visitors; here, only the blare of hard rock. One fast food bar, the tables cluttered with leftovers, pathetically eyed by starving, abandoned dogs. . . . Everybody around seems to have walked straight out of a Gauguin canvas — girls are graceful, men are huge, old people have the bony facial structure of the Indians I saw in the Peruvian Andes. Families are camping on the floor, kids play games squatting on the Information Desk counter. . . . no way I can give a drink to those parched dogs — there is no water in a recess called "Toilettes."

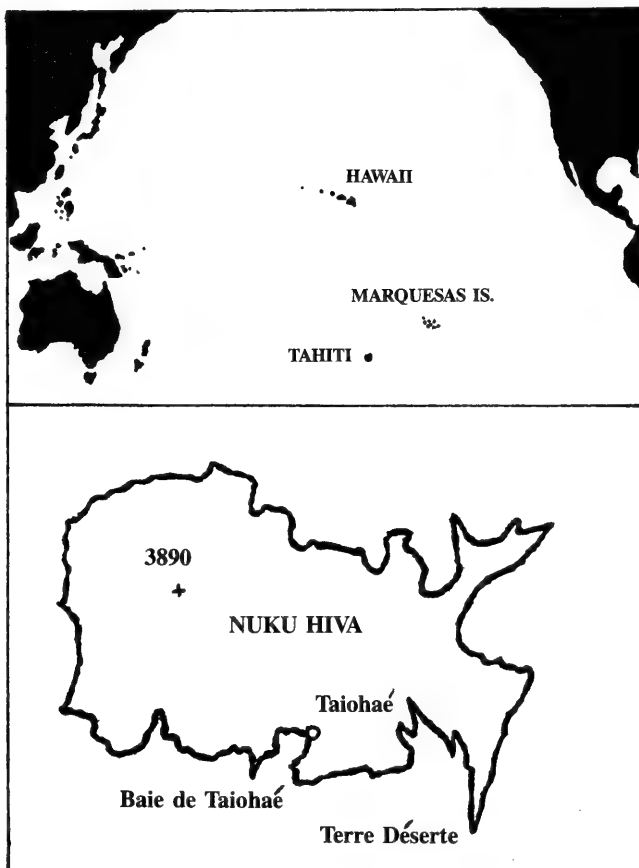
Schedules of transport to the capital, Taiohaé, are contradictory, but a truck will take passengers to the harbor. All I can do is wait. . . . and see. In Polynesia, everybody is "fiu," an endemic, chronic way of life similar to the Hawaiian "Hang loose." I recall situations like this in the course of previous trips in South America, or to Easter Island. As I settle down, I scribble my first notes, entitled: "Nuku Hiva, the shattering of my dreams!"

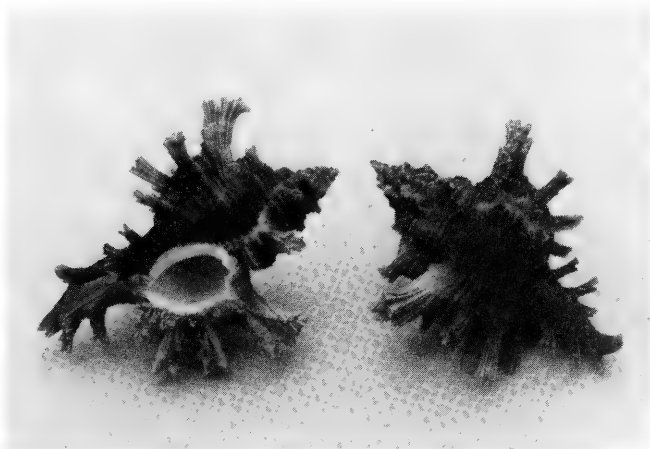
By the end of the afternoon, the "airport truck" jostles a dozen passengers up and down hill, across a desert of dust and potholes, to a tiny harbor, where a small boat is about ready to weigh anchor. Twilight sees us putting out to sea where I can finally have my first glimpse of the majesty of this impressive island, which displays signs of various microclimates.

Vertical basalt cliffs rise sheer out of the sea, battered by crashing waves; ranges of jagged peaks jut out like sharks' teeth in the background. I am beginning to enjoy the ride, until rough squalls past the headland turn it into a nightmare. Night falls and our little craft fights on, tossed about by high waves, rolling and pitching. Seasickness takes its toll and I hang on to life and to the open window, whipped by gusts and spray for the last two hours of the trip.

The next morning I discover the overwhelming, slightly forbidding beauty of the Bay of Taiohaé, from the balcony of my room at the Keikahanui Inn, one of only three rooms in the hotel. Apparently, I am the only guest in a place unaccustomed to tourists. But I soon get to know the schoolmaster, the postmaster, the priest, the Chinese shopkeeper, the baker and the bank manager-clerk. All the other males seem to be wood or stone carvers by profession. The only man to be seen tilling the land is serving a three month sentence to hard labor. When I must move out of my expensive hotel because of a lack of catering and transportation, a Marquesan family offers me a room for rent. Food is scarce and expensive — it has to be brought all the way from France, China or Australia. Bread in various degrees of freshness is the staple diet, the tiny market has only grapefruit on sale, a few carvings and common cowries.

The land fauna is represented by a few horses and goats, skinny chickens and legions of rickety dogs, still used in places, as of old, to supplement the scarcity of meat. I sight two species of birds while I am there, and I cannot close the inventory without mentioning the myriads of "nonos" or sandflies along the seafront, whose bites produce itchy swellings that last over a week! Thank God, the sea shelters more desirable species! After all, I have not come over to lounge in some tourist haven; I am after "something different. . . ."





*Chicoreus steeriae* brought up in a fisherman's net.

Soon enough I discover the warm-hearted friendliness of the indigenous inhabitants, who usher me in the right directions. In their peculiar, singing, Polynesian French, they tell me all about the good spots for shelling. Together we explore the far end of the beach at low tide, and under the rubble, among the basaltic sand and boulders, we find *Conus rattus taiensis* Bruguière, 1792; *Conus catus* Bruguière, 1792; *Conus encaustus* Kiener, 1846 and *Conus sponsalis* Bruguière, 1792 with peculiar red markings; one *Conus marchionatus* Hinds, 1843, fresh dead; *Harpa amouretta* Röding, 1798; a spectacular *Strigatella litterata* (Lamarck, 1811); *Nebularia coronata* (Lamarck, 1811); and a huge form of *Strigatella pellsiperpentis* (Reeve, 1844), quite distinct from the forms found in other Pacific islands. Also we find endemic *Nassarius candens* (Hinds, 1844) and large, colorful *Nassarius gaudiosus* (Hinds, 1844); *Cymatium nicobaricum* (Röding, 1798) and *C. gemmatum* (Reeve, 1844); *Maculotriton seriale* (Deshayes, 1844); *Morula anaxeres* (Kiener, 1835); *M. uva* (Röding, 1798) and another unidentified *Morula*; *Planaxis labiosa* A. Adams, 1853; and a pretty form of *Heliacus variegatus* (Gmelin, 1791).

Rolling in with the tide and digging straight into the sand are hundreds of *Cypraea caputserpentis* f. *caputanguis* Philippi, 1849, the endemic form of the Marquesas, extremely dark, narrow and almost patternless black, reminiscent of the *C. caputdraconis* Melvill, 1888 I collected in Rapa Nui (Easter Island). We also collect a host of microspecies among the rubble, mainly *Rissoina*, ceriths and turrids.

The following expedition, after nightfall, produces a *Conus vauitieri* Kiener, 1849 and some unusually dark *Terebra crenulata* (Linné, 1758) with strong subsutural sculpture; a few *Bulla ampulla* Linné, 1758; *Peristernia lirata* (Pease, 1868); and *Engina siderea* (Reeve, 1846).

A fisherman who has been watching me stops me in the street the next day to offer me a set of beautiful gem *Chicoreus steeriae* (Reeve, 1845) he has caught in his net. . . . I am really having a great time and blending gently with the environment: shells keep turning up in odd places with big smiles and kind words. It is gratifying.

I hire a reliable driver and his four-wheel drive Ranger and we set off at dawn to have a look inland and explore other shelly coves. The excursion becomes an epic when it starts to rain heavily and the dirt road turns into a skiddy morass. Still we drive ahead heroically, up and down meandering tracks reminiscent of those leading to Machu Picchu. We see Taipivai and its drenched copra plantation, and at Taheo I have the only memorable meal of my stay: a large plate of seafood which costs me \$40.00.

Even under grey skies, the view from the tops is of unearthly splendor: an intricacy of sloping buttresses thick with rain forests, punctuated by waterfalls, abysses of green at my feet, and those jagged peaks, peculiar features of the Marquesas, looming above. . . . Practically no sign of life anywhere, a cluster of houses here and there, a dozen indifferent villagers, a few more skeletal dogs. We trudge up a mountain path for close to an hour to see an original Tiki and the site of its temple, but only a few blackened stones lie scattered in a lush jungle. We slither back downhill, ankle deep in mud.

The unique, eerie atmosphere of Nuku Hiva is hard to describe. It must be experienced: it is wild, sad, impressive, overpowering. It makes one feel humble in the face of nature. Life here is far from the easy life we dream it is in a Polynesian paradise. No wonder the early settlers of Henua Enana set out on long voyages in search of more inviting islands, as far down as Maori land!  
(To be concluded in September)

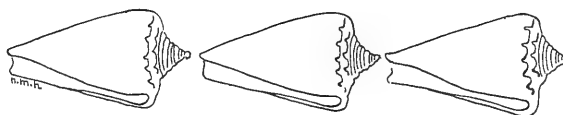
## PUBLICATION ANNOUNCEMENTS

We have received information from the publishers on the following books:

**Prosobranch Phylogeny**, W.F. Ponder, Editor. *Malacological Review, Supplement 4, 1988. Proceedings of a Symposium held at the 9th International Malacological Congress, Edinburgh, Scotland, 31 August - 6 September, 1986. Hardbound, approx. 360 pages.* Topics covered include evolution and relationships of major groups; relationships within single families or small groups of families; evolution of characters, systems or processes; classification of the Caenogastropoda and Heterostrophia; index to scientific names used. \$48.00, postage included. *Malacological Review, P.O. Box 3037, Ann Arbor, MI 48106.*

**The Banana Slug — a close look at a giant forest slug of western North America**, by Alice Bryant Harper. 8½ x 5½, 32 pages, 24 color photographs, drawings and range map. The first publication available to provide complete and detailed information about this animal recently rejected by the California Governor for status of Official State Mollusk. ISBN 0-962128-0-0. \$8.40, California residents (includes tax and postage), \$7.95, outside California, (includes postage). Bay Leaves Press, 7000 Soquel Drive, No. 310, Aptos, CA 95003.

Walter E. Sage 1/6/89



## WORLD SIZE RECORDS: Corrections

(Cont. from December, 1988)

Genera	Species
Neptunea	sculpturata; species changed to polycostata sculpturata
Niso	hendersoni; delete — under 4.00cm
Oliva	miniacea; owner is Larry Strange
"	textilina; is a syn. of sericea
Ostrea	cristigalli; 3 changes; spelling=cristagalli; owner=Larry Strange;
"	Genus=Lopha
"	laperousii; change to Crassostrea gigas laperousii
Pecten	jacobus; species changed to maximus jacobus
"	senatorius; change spelling to senatoria
Penion	dilatatus is cuvierianus
Phalium	undulatum; species changed to granulatum undulatum
Pinctada	mazatlanica; owner is Laound, not Lound
Purpura	affinis; is a syn. of armigera
Pycnodonte	Change spelling to Pycnodonta
Strombus	hawaiiensis; change spelling to hawaiiensis and species to vomer hawaiiensis
Terebra	muscaria; is a syn. of areolata
Thais	biserialis; change to haemostoma biserialis
Trivia	solandri; delete — under 4.00cm
Voluta	aethiopicus; change spelling to aethiopia
"	kieneri; species changed to dubia kieneri
"	mamilla; change spelling to mammilla
"	mirabilis; now placed in Turbellinellidae
"	smithi; delete — is under Teramachia
"	stearnsi; owners are C. & C. Martin
"	turneri; locality is Australia
Volutopsius	harpa; owners are C. & C. Martin
Xenophora	longleyi; owner is Larry Strange; locality — add Florida

Note: These changes and corrections will be included in the next printing of the World Size Records.

## CARIBBEAN EPITONIIDAE

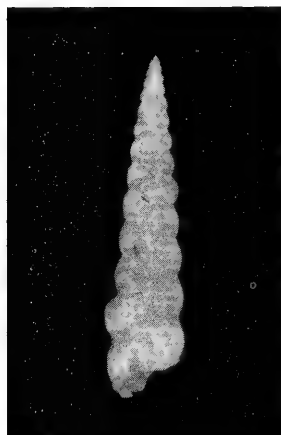
by Kevan Sunderland



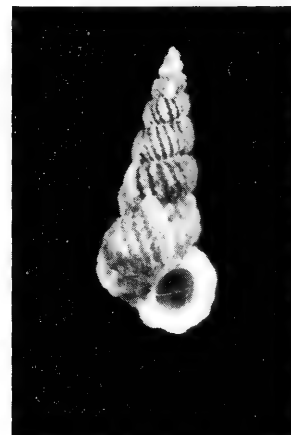
*Nystiella atlantis* Clench & Turner, 1952. 14mm. 160 fathoms, off Valadero Beach, Cuba.



*Nystiella concava* (Dall, 1889). 24mm. 90 fathoms, Marathon, Florida.



*Nystiella opalina* (Dall, 1927). 25mm. Key West.



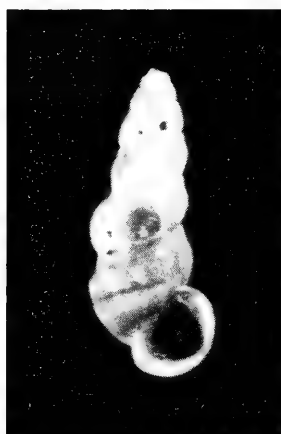
*Cirsotrema pilsbryi* McGinty, 1940. 25mm. 90 fathoms, Key West.



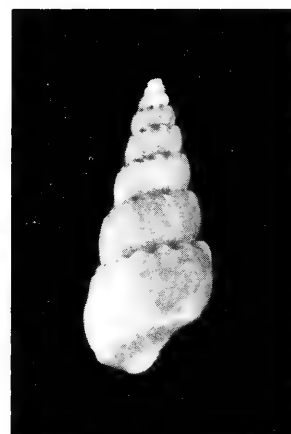
*Alexania floridana* Pilsbry, 1945. 11mm. 35 feet, Jamaica.



*Amaea retifera* (Dall, 1889). 30mm. 70 fathoms, Key West.



*Opalia burryi* Clench & Turner, 1950. 15mm. 50 fathoms, Palm Beach, Florida.



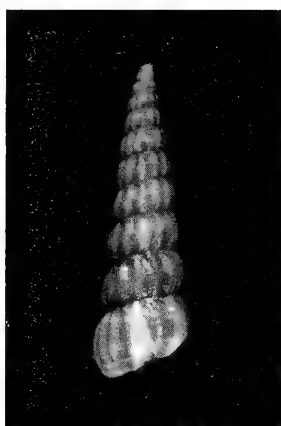
*Opalia crenata* (Linné, 1758). 22mm. 20 feet, Key Largo.



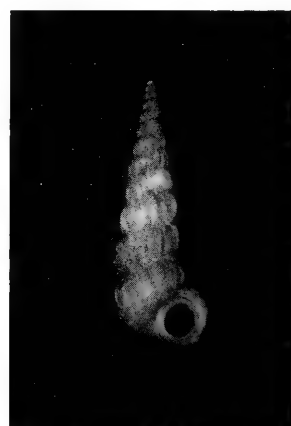
*Opalia eolis* Clench & Turner, 1950. 13mm. 130 fathoms, Key West.



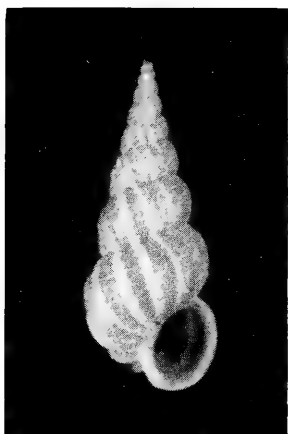
*Opalia morchiana* (Dall, 1889). 21mm. 70 fathoms, Barbados.



*Opalia tortilis* (Watson, 1883). 27mm. 140 fathoms, Key West.



*Opalia watsoni* (de Boury, 1911). 20mm. 190 fathoms, Key West.



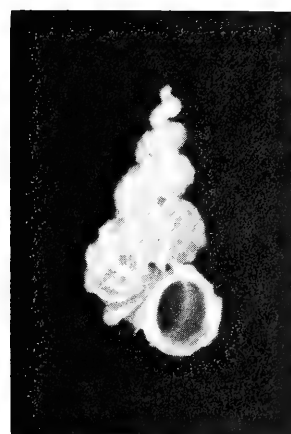
*Epitonium albidum* (Orbigny, 1842). 28mm. 70 feet, Jamaica.



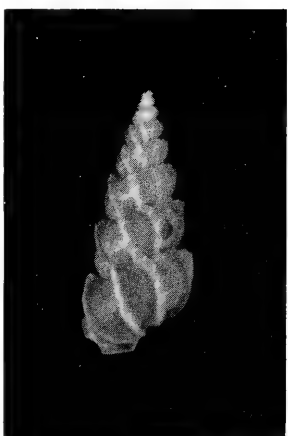
*Epitonium blainei* Clench & Turner, 1953. 20mm. 160 fathoms, Key West.



*Epitonium candeanum* (Orbigny, 1842). 22mm. 20 feet, Key West.



*Epitonium echinaticostum* (Orbigny, 1842). 15mm. 20 feet, Key West.



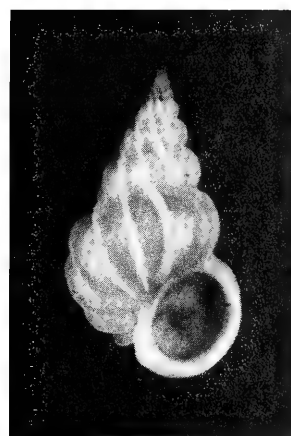
*Epitonium foliaceicostum* (Orbigny, 1842). 25mm. Dredged, 90 feet, Key Largo, Florida.



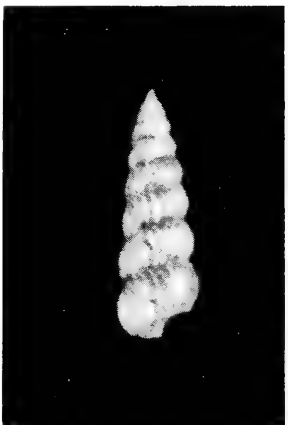
*Epitonium multistriatum* (Say, 1826). 14mm. Sanibel Island.



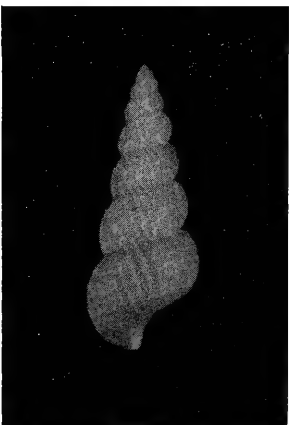
*Epitonium nautlae* (Mörch, 1874). 22mm. Dredged, 80 feet, Delray Beach, Florida.



*Epitonium occidentale* (Nyst, 1871). 28mm. Isla de Margarita, Venezuela.



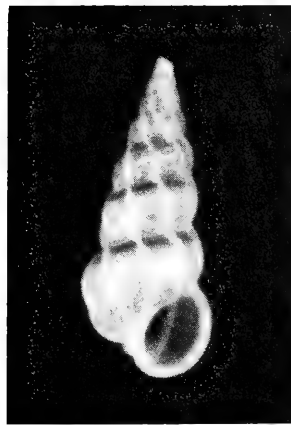
*Epitonium polacium* (Dall, 1889). 12mm. 140 fathoms, Sambo Reef, Key West.



*Epitonium rushii* (Dall, 1889). 17mm. 90 fathoms, Key West.

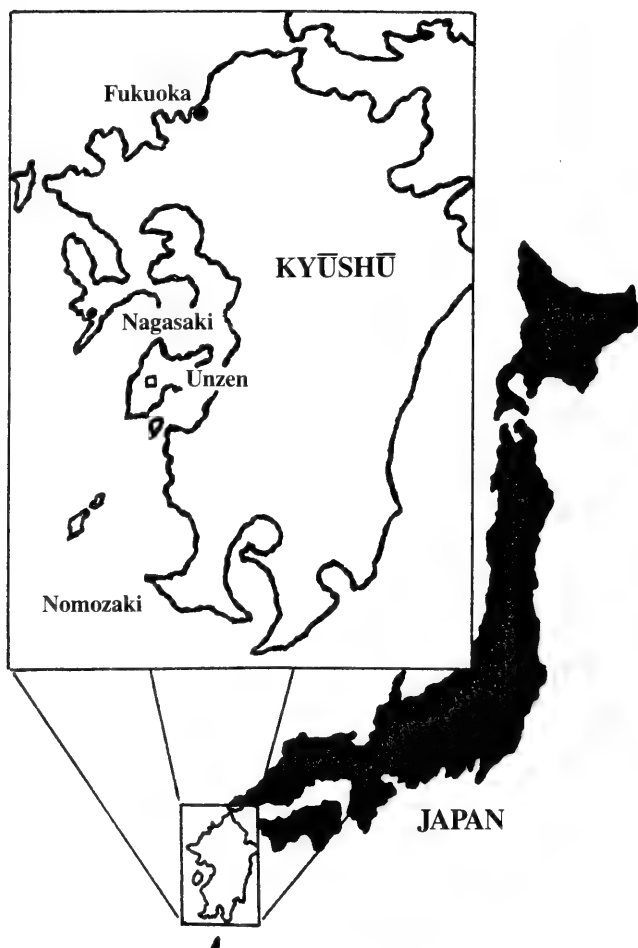


*Epitonium turritellum* (Mörch, 1874). 20mm. 90 fathoms, Key West.



*Epitonium unifasciatum* (Sowerby, 1844). 18mm. Dredged, 30 feet, Fort Myers, Florida.





## ADVENTURES IN JAPAN Part I

by Peggy Williams

When my husband expressed an interest in travel to Japan, I quickly concurred, and immediately began writing to everyone I knew who lives in Japan, and even a COA member whom I hadn't met. A good friend, Tadashi, who lived for some months with my mother and dad, had returned to his family business in the southern island of Kyushu. We wanted especially to visit with Tadashi and his family and this is part of the story of that visit. Though we enjoyed ourselves immensely, I should mention that without Tadashi's translating skills, we would have been lost and miserable, totally without means of communication. In the more remote regions of Japan, the only "alphabet" signs are for Kodak, Coke and the like, and it took us days merely to learn the symbols for "exit" and "restrooms"!

Tadashi advised that we fly immediately to the city nearest him, Fukuoka. He and Michi and their two-year-old son took us to their home, long after dark, for a traditional meal of raw fish and rice. We slept on a thick feather mattress on the floor, far more comfortably than we would have thought. The next day, touring Tadashi's father's garden, I found my first shell: a land snail, *Euhadra herklotsi* (Von Martens, 1861), crawling up a rock. Of course, everyone thought I was crazy, but I collected several. Tadashi's sister gave me a keychain made of two small clams covered by embroidered cloth.

Tadashi and Michi took a couple of days off and drove us southwest to the seacoast. He knew I wanted to see the coast and collect shells, and he did his best to accommodate me. We also got to see coun-



Kurume, Fukuoka, Japan: *Euhadra herklotsi* in garden.

tryside that most tourists never visit. Crossing a ferry to the mountain spa of Unzen, a hot springs area, we drove along the coast a short way. Tadashi, laughing, stopped at a roadside seafood stand so I could investigate the shellfish sold there. A man cleaning some beautiful black-bearded arks, *Anadara nipponensis* (Pilsbry, 1901), graciously gave me several. As we were leaving, his wife brought from the house a large *Tonna luteostoma* (Kuster, 1857) and a sadly broken *Rapana venosa* (Valenciennes, 1846). My husband made me leave the latter behind for lack of space.

That night we slept in a real Japanese-style hotel in Unzen, with communal bath, feather beds on the floor, and serving girls who brought dinner to our rooms — 36 different kinds of food, served at a low table, sitting on the floor. But that's another story, and the only mollusk involved was the raw cuttlefish we had for dinner!

The next day we traveled on to Nomozaki, at the southernmost tip of this part of Japan, stopping at another seafood shop for *Turbo cornutus* Solander in Lightfoot, 1786, a turbo with spectacular spines at the shoulder; *Babylonia japonica* (Reeve, 1842); the large murex, *Chicoreus torrefactus* (Sowerby, 1841); and an abalone, *Haliotis varia* Linné, 1758. Fortunately the abalone had already been eaten and they gave me the shell, because I wasn't prepared to pay the high price of abalone meat! The shopkeeper had to use a stick to push away the scorpionfish kept alive in the tank in order to reach the shells I particularly wanted. Also on the way to Nomozaki we passed a ship's unloading dock, where I found several species fallen from fishermen's nets and oyster catches, mostly oyster drills, *Urosalpinx* species (?) and a freshwater clam, probably a *Corbicula* species.

We reached the coast at Nomozaki where there is a seashell museum. I had figured out when the tide was low at Nomozaki, and I was quite anxious to visit the shore, but Tadashi, who didn't realize how important it was to reach the rocks before the tide came in, took us first to the museum and then to lunch. The museum has shells from all over the world nicely displayed on two floors. Many of the Florida and Caribbean shells were mislabelled, but of course the museum had probably never before had a visitor who would know that! We ate lunch there beside a dock; then I hurried down to find limpets, tegulas and chitons at the water level.

Finally we came to a public beach and walked past the gray sand beach area to the rocks. Tom and I climbed across the rocks to race the tide for live and crabbed shells in the intertidal area. I was pleased to find at least two species of chitons as well as many rock shells, tegulas, limpets and such. Tadashi and Michi watched in amusement as we tried to keep our feet dry. My husband, though not a shell collector, indulges me and helps me enthusiastically on the occasions we reach the shore together. At last we gave up and headed back to the car as lowering clouds and a fast-rising tide hurried us along. We did find lots of shells in the beach drift on the way, however, and were walking head down when we met a television crew on the beach! The TV camera said "NBC" (Nagasaki Broadcasting Corporation), and the interviewer and cameramen were there to film for a morning news series about the seacoast. They interviewed me, through Tadashi, and

\*Peggy Williams, P.O. Box 575, Tallevast, Florida 34270, is the owner of *Shell Elegant*, as well as the current vice-president of COA.



Near Unzen, Japan: Peggy at seafood shop

I showed some of the shells we'd picked up, comparing them to what we find at home in Florida. I wonder how that news broadcast came out, whether I am a television star in Nagasaki, and what the Japanese think of crazy Americans who brave the rain just to pick up shells on a Japanese beach!

Tadashi insisted we stop once more, though I didn't think we'd find much, since the tide was coming up fast. I think he was sorry he had delayed earlier and wanted to make up for it. Anyway, we did stop at a little cove with a few houses nearby, and fishermen's dories tied up with long lines to the shore. The beach was pebbly, not sandy, but the water was very clear and I soon began to find shells! By the time we had reached the end of the cove, we were amazed at the shells we had found and had filled all our containers. We picked up cups and bags from the beach for more shells, Tadashi now enthusiastically helping while mist turned to light rain, and Michi and the baby napped in the car. We found abalone, cowries, cones, pheasant shells, turbos, limpets, ark shells, mussels, and much, much more. I surely would like to have been able to snorkel at that spot!

Wet but happy, we returned through Nagasaki, stopping at a 17th century castle on the way. Tadashi had learned of a shell collector living in Nagasaki, Azio Yamamoto, who welcomed us into his home to see his shell collection. His wife served us tea and cakes as we talked, and then we toured his shell room — truly breathtaking, and much more interesting to me than the museum! He had been collecting for many years and showed us two shells named for him. He had several huge *Petrochus*, I think *teramachii* Kuroda, 1955 and *rumphii* (Shepman, 1879), as large as the Queen Conchs I impress visitors with! Though we had no common language (Tadashi again translated), we had a delightful visit. Mr. Yamamoto gave me a pair of clam shells that are part of a game: several sets of shells, polished and painted with a scene on the inside, are mixed on the table; the object is to match the pairs — a sort of "Concentration" game. I later saw some antique pairs that were quite valuable.



Nomosaki, Japan: Beach and rocks.

Tired and sleepy, we finally returned to Tadashi's home for one more night. In the morning we boarded the Bullet Train for a journey back to Tokyo. Fortunately, Michi saw us to the train, for there were no signs in English and no one who could understand us until we reached the tourist areas of Kyoto.

Part II will present a collecting trip to Yokosuka with a Japanese shell club.

## MUSEUM WITH A MOLLUSK MISSION

The long, interesting history of Sanibel and Captiva Islands revolves largely around their natural history, particularly their unique place among the shell meccas of the world. Most tourists are lured to Sanibel by her long beaches that promise rich conchological rewards. Sanibel's fame as a shelling ground spread nationwide, and today's development of the area largely owes its impetus to the lowly seashell.

At last the island community is marshalling an overdue token of gratitude by launching the development of a museum to preserve the natural history of shells and to educate visitors about the necessity of preserving the environment that created these shells. Through exhibits with an environmental message, the public will learn the basic rules of sealife and the importance of the role of a healthy shoreline. Visitors will learn through displays how mollusks feed many species of birds, game fishes and amphibians, how they have served man since prehistoric times as food, utensils, weapons, ornaments and religious symbols. In addition to these displays recounting "the miracle of the mollusk," lectures and seminars will tie in with field trips to inform the public about molluscan habitats.

Captiva architect George Tuttle has designed the museum building to blend with old-Florida architecture and protect the environment. Less than four acres of high ground will be consumed, and the museum will connect by nature trails to the Sanibel/Captiva Nature Center and the J.N. "Ding" Darling Wildlife Refuge. Tuttle designed the museum to provide exhibit halls, collections storage areas, a gift shop and a shell library to serve the community.

"Although our museum will be staffed by experts," explained Dr. R. Tucker Abbott, Founding Director, "funds and facilities will probably not be available for much in-house research. We will host and assist students or scientists coming to Sanibel to study mollusks." He adds, "Other Florida institutions have huge budgets for marine life studies. We're not out to duplicate their efforts."

While the museum will have a fairly large scientific collection for assisting in shell identification, it will not carry long suites of the various kinds, as do taxonomic centers like the Florida Museum of Natural History. "We don't plan to house type specimens. Shells of taxonomic scientific value belong where there are malacologists in residence and where there are huge scientific shell libraries to consult," says Dr. Abbott.

"Sanibel's Shell Museum is not just a local institution," he explains, "but the spearhead of a worldwide effort to focus attention on mollusks and stem the tide of forest and coral-reef destruction. Other present-day mollusk research centers are concentrating on speciation, evolution and description of new species. What we need is a worldwide program for mollusk enthusiasts with meaning to the average shell collector."

Dr. Abbott plans a unique computerized information bank with access to the internationally based Zoological Record in London. In minutes, statistician Dr. Margaret Thorsen can pull out references to over 20,000 articles and monographs dealing with nearly every facet of conchology. Additionally, one of Dr. Abbott's lifelong dreams may become a reality. "To identify many shell species," he states, "you must examine the type specimen, but who can afford to dash off to a museum in Tokyo, London or Sydney to examine these types?" The solution, in part, he says, is to build up a central file of colored slides of types and of examples of living animals, preferably in their natural habitats. With dreams like this, Sanibel's proposed Shell Museum is a indeed a mission to let the world know about the miracle of the mollusk.

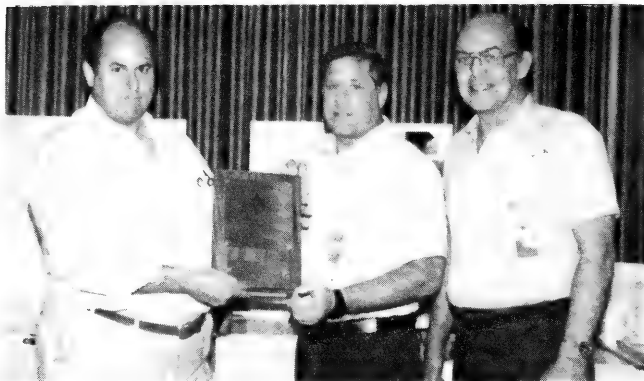


photo by Mary Lou Pugh

Judges Dave Pugh and Al Deynzer presenting the COA Trophy to Francis Parry, Jr. for his winning exhibit of Ecphora at the 1989 Naples Shell Show.

## THE SHELL SHOW IN AMERICA Part II

by Don Dan

### The Shows of the Summer — Fall Season

"American shell shows are places where people are engaged in the refined art of formally showing off their hobby. . . They are glittering places, where exhibits of fabulous and beautiful rarities are given space alongside. . . the lowly Whelk or Horse Conch. . . and the Whelk just might carry the day. . . They are the very heart of shell collecting. . . An estimated 40,000 people attend shell shows every year in the United States."\* Of the 23 open, competitive shows, seventeen are run on an annual basis. In December, we reviewed those shows held during the Winter and Spring months, all of which happen to be competitive shows. Here we will summarize the American shows normally occurring during the Summer and Fall months, including three non-competitive shows. As before, we include only shows open to all exhibitors, regardless of regional or club affiliations.

#### JACKSONVILLE SHELL SHOW

Location: The Flag Pavilion, Jacksonville Beach, FL.

Average Scientific Display: 600 feet

Average Attendance: 2,500

Admission: \$2.00

One of the premier shell shows in the U.S., the Jacksonville Show will be celebrating its Silver Anniversary this year. Located right on the beach, the cavernous Flag Pavilion can accommodate the largest exhibits and numerous well-stocked dealers. Good scientific and artistic displays are the norm for this show.

Jacksonville is noted for its well-orchestrated hospitality, showered on all out-of-town guests. As a result, it attracts not only collectors from Florida but also many from the other southern states. The Judges' Banquet at Jacksonville draws by far the largest crowd of any show banquet — a crowd of over a hundred is not unusual — followed by a lively President's Party the next night. All exhibitors and dealers are treated to a sumptuous lunch daily. Their hospitality, their genuine fellowship, and the quality of their exhibits are their claims to fame.

#### JERSEY CAPE SHELL SHOW (Non-competitive)

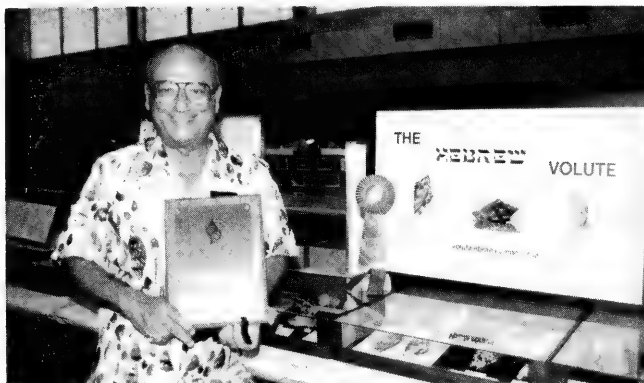
Location: The Wetland Institute, Stone Harbor, New Jersey

Average Scientific Display: 100 feet

Average Attendance: 600

Admission: \$1.00

As contrasted with the very large Jacksonville Show, Jersey Cape is probably one of the smallest shows around. It has the child-like innocence of a local show set against the background of a summer beach resort. It is a nice little annual get-together of local collectors to complement the many summer beach activities of Stone Harbor.



A proud Abe Levine posing with his COA Trophy and his prize-winning exhibit, "The Hebrew Volute," at the 1989 Greater Miami Shell Show.

The exhibition space is very limited and commercial activities typically include one dealer.

#### OREGON SHELL SHOW

Location: Oregon Museum of Science and Industry, Portland

Average Scientific Display: 120 feet

Average Attendance: Large museum crowd

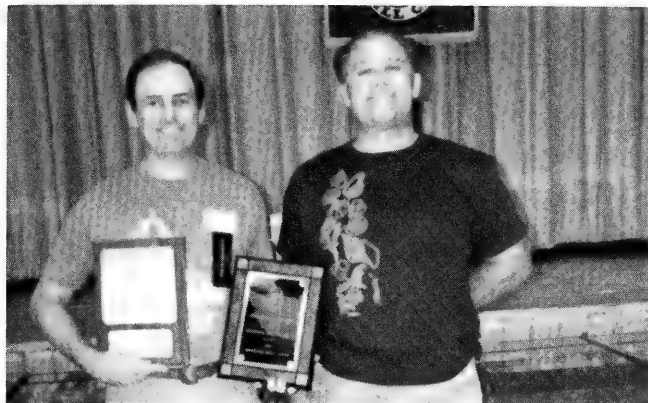
Admission: \$3.00 (Museum entrance fee)

Previously a local club show, Oregon has recently opened its doors to all exhibitors. This annual event runs for two to four weeks with the Museum providing uniform 8 foot long display cases. Usually, a single room of 50 X 100 feet houses the exhibits. There are no dealers. This format is expected to continue. Juried exhibits are given the usual array of awards, including the COA and duPont Trophies.

### 1989 SUMMER & FALL SHELL SHOWS AND MEETING

Jul. 15-16	<b>Keppel Bay Shell Show</b> , Yeppoon, Queensland, Australia Jean M. Offord, 277 McDougall St. N. Rockhampton, Q'ld, Australia . . . . . (079) 283-509
Jul. 21-23	<b>Jacksonville Shell Show</b> , Jacksonville Beach, FL Nellie Hawley, 11604 Surfwood Ave. Jacksonville, FL 32216 . . . . . (904) 641-4606
Aug. 12-13	<b>Townsville Shell Show</b> , Townsville, Queensland, Aust. Von Vandenburg, 12 Lillipilli St. Vincent 4814 Townsville, Q'ld, Australia . . . . . (077) 75-6275
Aug. 17-19	<b>Jersey Cape Shell Show</b> , Stone Harbor, NJ J.B. Sessoms, P.O. Box 24 Ocean City, NJ 08226 . . . . . (609) 653-0817
Sept*	<b>Oregon Shell Show</b> , Portland, OR Dr. Byron Travis, 4324 N.E. 47th Ave. Portland, OR 97218 . . . . . (503) 284-1365
Sept. 22-24	<b>Crown Point Shell Show</b> , Merrillville, Indiana Judy Brooks, 12109 Kingfisher Road Crown Point, IN 46307 . . . . . (219) 663-2700
Sept 23-24	<b>Gulf Coast Shell Show</b> , Panama City, Florida Bob Granda, 925 Rosemont Drive Panama City, FL 32405 . . . . . (904) 769-2878
Oct. 7-8	<b>Annual German Shell Club Show</b> , Cologne, West Germany Dieter Röckel, Neckar Anlage 6, 6930 Eberbach, W. Germany . . . . . (06217) 6987
Oct. 20-22	<b>North Carolina Shell Show</b> , Wilmington, NC Alta Van Landingham, P.O. Box 542 Hampstead, NC 28442 . . . . . (919) 686-7537
Oct. 21-22	<b>Philadelphia Shell Show</b> , Philadelphia, PA Al Schilling, 419 Linden Ave. . . . . (215) 886-7537 Glenside, PA 19038 . . . . . or 1-800-345-1240 (toll free)
Oct. 29	<b>British National Shell Show</b> , London, England Kevin Brown, 12 Grainger Road . . . . . (01) 568-8333 Isoeworth, Middlesex TW7 6PQ, England *Exact date to be announced or contact Dr. Travis.

\*For Part I, see the December 1988 American Conchologist.



Winner of both the COA Trophy and the Founder's Award at the Broward Shell Show, Gene Everson (left) stands in front of his worldwide, self-collected exhibit. The slim, trim man on the right is Wayne Harland, Broward Shell Show Chairman.

#### PACIFIC NORTHWEST SHELL SHOW (Non-competitive)

Location: The Washington State Museum, University of Washington, Seattle.

An occasional event sponsored by the Pacific Northwest Shell Club in Seattle. There are no dealers at this show. there will be no show for 1989.

#### CROWN POINT SHELL SHOW

Location: South Lake Mall, Merrillville, Indiana

Average Scientific Display: 500 feet

Average Attendance: Medium mall crowd

Admission: Free

This biennial event has been held in recent years in alternation with the Midwest Regional Shell Show in Indianapolis. This arrangement greatly eases the burden placed on the relatively small midwestern clubs. In fact, when we talk about these shows, we cannot help but mention all the midwestern clubs which lend their support. They include, besides the host club, the Chicago Shell Club, the Indianapolis Shell Club, the Louisville Conchological Society and the Greater St. Louis Shell Club. Although relatively new, this show has been relatively successful in drawing many absolutely first class exhibits, easily matching the finest that the Floridian shows have to offer. Space has been provided for a group of very well-stocked dealers.

#### MIDWEST REGIONAL SHELL SHOW

Location: Glendale Mall, Indianapolis, Indiana

Average Scientific Display: 450 feet

Average Attendance: Small mall crowd

Admission: Free

The organizers of this show originally envisioned the show to be an annual event sponsored on a rotational basis by the various midwestern shell clubs. Reality, however, made them aware that none of the clubs are large enough to handle it alone, thus the current arrangement of alternating with Crown Point, depending for support on the other regional clubs. This pair of events are now virtually identical in their format.

#### GULF COAST SHELL SHOW

Location: Panama City Mall, Panama City, Florida

Average Scientific Display: 300 feet

Average Attendance: Small mall crowd

Admission: Free

The many small beach communities along the northern Gulf of Mexico give rise to the shell consciousness of this region. Although small in number and distanced from southern Florida clubs, there is no lack of enthusiasm in the Gulf Coast Shell Club which sponsors the show. Originally organized as an occasional event, the Gulf Coast Shell Show has been held annually since 1987. A few dealers are usually present at this show. There is good potential to bring the support of collec-



COA Trophy winner Joe Lampono with his winning exhibit on Muricidae and his trophy at the Fort Myers Festival of Shells.

tors from the Gulf communities further to the west, including Alabama, Louisiana and Texas.

#### NORTH CAROLINA SHELL SHOW

Location: Independence Mall, Wilmington, North Carolina

Average Scientific Display: 250 feet

Average Attendance: Small mall crowd

Admission: Free

This annual show has a similar situation to the Gulf Coast Shell Show. It is relatively isolated from the main shelling community. But the enthusiasm of the members helps to make it a worthwhile event. A get-together for show guests at the home of Alta and Van Van Landingham is one of the events of this show. Dealers attend this show.

#### PHILADELPHIA SHELL SHOW (Non-competitive)

Location: The Academy of Natural Sciences

Average Scientific Display: 250 feet

Average Attendance: Large museum crowd

Admission: \$5.00 (Museum entrance fee)

A major blessing befell this show when, in 1988, the Philadelphia Academy of Natural Sciences decided to take over the sponsorship of this show with the full support of the Philadelphia Shell Club. It also changed the show to an annual event. The Academy, which houses the second largest shell collection in the U.S., has a long, illustrious conchological history, and this move appears to be a continuation of that tradition.

This is the only Summer/Fall shell show for the very populous north-



Alfredo Romeu receiving the COA Trophy from judge Emilio Garcia for his exhibit of Philippine terrestrial snails at the St. Petersburg Shell Show.





photo by Mary Lou Pugh

**Pat Bingham, COA Trophy winner at the Treasure Coast Shell Show for her exhibit of self-collected Bahamian shells, with Dave Pugh, one of the judges. The other judge was Dr. Ed Petuch.**

eastern U.S., so it has the potential of attracting many collectors. Individual displays are placed along the spacious halls against major museum exhibits, a rather dramatic setting, unusual for a shell show. A tour of the Mollusk Section of the museum by resident malacologists is another highlight of the show. Dealers are given table space on the Museum ground floor.

#### HAWAIIAN SHELL SHOW

Location: Blasdale Center, Honolulu, Hawaii

Average Scientific Display: 150 feet

Average Attendance: 650

Admission: Free

Yes, in this island of swaying palm trees there is occasionally a shell show. The 1988 show was the first in many years, an event I was fortunate to attend. Don't expect any large and sophisticated exhibits, nor should one look for detailed organization. Look for the most relaxed conversation. The 1989 show was a competitive show, yet there was a minimum of tension, few anxieties, plenty of easy-going comradeship. Even the few dealers displayed none of the usual commercial seriousness found on the mainland. What a pleasant change of pace!

We shall miss Pat Renz, member of the Board of Directors of the Sanibel/Captiva Shell Club and longtime shell enthusiast, who died, October 20, in Nairobi, Kenya.

#### BEST OF THE NEWSLETTERS

*It seems rather presumptuous of us to treat **Hawaiian Shell News** as a club newsletter, but Stuart Lillico's (and Elmer Leehman's) article addresses a current and very distressing problem facing those among us who enjoy the sport of shell exchange. Conchologists of America and **American Conchologist**, like **HSN**, have wrestled with the idea of intervention in some form, and have desisted for the same moral and legal reasons that Mr. Lillico mentions. In lieu of any action, we present our June "Best of the Newsletters" with thanks to Stuart Lillico and **Hawaiian Shell News**. We could never have said it better! Read and heed, all you traders!*

#### SHELL EXCHANGES:

##### How To Avoid the Frustrating 1 Percent

by Stuart Lillico

A recurring dilemma faced by the Editor of **Hawaiian Shell News** (and, I am sure, editors of most other shell club newsletters, as well) is what to do with the occasional letter of complaint about unsatisfactory shell exchanges. These usually boil down to a single problem: the other party either has sent unacceptable shells or has returned nothing at all. Will HSN please do something about it?

With only occasional lapses, **HSN** has run an "Exchanges" column for the past 35 years. Each time it has failed to appear for a

couple of issues we have received peremptory calls for its restoration. Understandably we have a great interest in having the feature maintain its good reputation. But what can we do about that unsatisfactory trade?

Actually, very little.

Our options have been: 1. Write the offending party a nasty letter; 2. Publish a warning about further exchanges with him; and 3. Send a note of sympathy to the "victim." Each of these courses has an element of futility and may even create legal problems. We have tended to tiptoe warily through this minefield. The Society's responsibility to its members is clear, but justice is not necessarily best served by arbitrary, unilateral action.

More than a decade ago, former Associate Editor Elmer Leehman, an inveterate shell trader, wrote on this problem [**HSN** January 1976 p.1]: "Ninety nine per cent of the world's shell collectors are thoroughly decent people with no intention of cheating anybody. Most complaints, we find, are generated by misunderstandings, different customs or physical problems — plus a little laziness."

There remains, however, the one per cent, the intentionally dishonest. Nothing HSN can do can force such a person to give full value. The collector who seeks exchanges must accept the risk of encountering such a person once in a while.

*A simple basic rule in exchanging shells, particularly with someone not personally known to you, is to expect the initiator of the swap to send his shells first.*

Leehman offered a set of guidelines that he suggested would help to standardize shell exchanges. Here they are, in essence:

1. Unless you say otherwise, both you and your trading partner have a right to expect gem specimens. Use the **HMS** International Shell Grading Standards to describe quality. Give dimensions in millimeters. Defects, abnormalities and color peculiarities should be clearly stated.

2. Be sure there is complete mutual understanding as to exactly what is being swapped for what. If there is the slightest doubt, hold your package and write another letter.

3. Agree in advance on postal arrangements. Will the shells go by ordinary surface mail or by air? Should they be registered or insured or neither? The difference in cost of mailing a couple of cowries or a helmet shell, for example, is important.

4. Try to establish an approximate equality of values in your exchange. Use current or recent dealers' lists as a guide. (It's best to agree in advance on which list. Tom Rice's **Catalog of Dealers' Prices** is reliable and widely available.)

5. Once an understanding is reached on terms of an exchange, get your specimens into the mail at once. Nothing destroys the satisfaction of a trade as fast as a frustrating wait for the shells to arrive. And send an acknowledgement immediately on their arrival.

6. Pack your shells well. Don't skimp on the container, the packing material or the wrapping. Remember, a shell that arrives broken has not been delivered according to agreement.

7. A broken or otherwise unsatisfactory shell may be returned. In such an event, do it within three days. Send an airmail letter of explanation immediately. If practical, include a photo of the damaged container. All parts of a broken shell should go back also.

8. It is incumbent on both you and your exchange partner to replace any shell considered unsatisfactory. Don't hesitate to explain why.

9. Conduct your exchange just as you would want your counterpart to conduct his. Bend over backward to be fair. Don't try to be clever, or beat someone out of a valuable shell. Be particularly considerate of a new collector. Never take advantage of his lack of experience; rather, help him learn. Your own reputation for integrity is more important than the belief that you have acquired a valuable shell cheap.

10. Lastly, should you fail to get the shell you think you deserve, be prepared to regard the experience philosophically. Don't angrily denounce the other fellow for cheating. Remember, he may at that moment be saying the same thing about you! Simply cross him off your trading list.

In the final analysis, there is little that anyone — including **Hawaiian Shell News** — can do to protect you. You must know your correspondent or be prepared to accept the consequences.

## BOARDTALK.....

From COA Treasurer WALTER SAGE: Now that the March and May reminders have resulted in payment of 1989 COA dues from most late renewals, let me briefly comment on our intended procedure for 1989 dues notices. We will send the dues renewal form for 1990 with the September issue of *American Conchologist*. This notice will be on blue colored paper so as to attract your attention, and there will be a notation on the envelope that the dues notice is inside. We hope that these steps will result in more of you paying your dues promptly.

## CONTEMPORARY CONCHOLOGY

by Walter Sage, AMNH

Two books published late in 1988 are now on the market and the publisher's announcement for each is repeated here. **NEOGENE HISTORY OF TROPICAL AMERICAN MOLLUSKS** by Edward J. Petuch, hard cover, \$64.95. "This book comprises a new synthesis of molluscan paleontology and marine biology, including the first large-scale survey of molluscan biogeographical, evolutionary and extinction patterns in the western Atlantic over the past 25 million years. This important new text encompasses: the illustration of more than 250 fossil mollusks, many rare and seldom-seen, from the Maryland Miocene and the Plio-Pleistocene of Florida and the Caribbean, as well as more than 100 "living-fossil" Caribbean species which are shown on 39 plates and numerous text-figures; a new classification scheme for, and an in-depth study of, the molluscan paleoprovinces and paleo-subprovinces of the western Atlantic and Eastern Pacific oceans, with numerous maps; a detailed discussion of "living-fossil" molluscan communities in recent South America and the Caribbean, taking into account their unique and unusual species, many of which are new to science; the descriptions, for the first time, of 48 important new gastropods, including new fossil species of nerites, cones, muricids, volutes, miters, and many others. This text will be a useful reference for paleontologists, malacologists, marine biologists, and biogeographers.

**MARINE GASTROPODS FROM CURAÇAO, ARUBA AND BONAIRE** by K. M. DeJong and H. E. Coomans, hard cover, \$42.50. "This book discusses 745 species of recent marine Gastropods (Prosobranchs, shelled Opisthobranchs and Pulmonates) collected on three islands of the Netherlands Antilles, situated off the coast of Venezuela. The research was carried out at the Zoological Museum of the University of Amsterdam. Special attention has been given to the small and lesser known gastropods, resulting in 58 species new to science. For the identification, a number of keys is supplied. The fauna of the southern Caribbean has proven to differ somewhat from that of the rest of the Caribbean Sea. Over 480 species are illustrated on 47 plates, consisting of original drawings and photographs, SEM photographs, and figures from the literature. For the non-figured species reference is made to illustrations in modern handbooks on Caribbean mollusks. This book is important to shell collectors and scientists working on the fauna of the West Indies."

**STERKIANA**, a molluscan journal devoted to the scientific study of land and freshwater shells of North America, has been received after a ten-year lull. Originally it was published by Dr. Aurèle La Rocque of Columbus, Ohio. Now, numbers 71 (1980) and 72 (Jan. 1989) have been issued in Radford, Virginia, under the co-editorship of Drs. Sally D. Dennis and John M. Bates. Annual subscription for individuals is \$10.00, and for institutions, \$14.00. Write: Dr. Sally D. Dennis, Biology Dept., Radford University, Radford, VA 24142.

## REVIEW:

Turgeon, D.D., A.E. Bogan, E.V. Coan, W.K. Emerson, W.G. Lyons, W.L. Pratt, C.F.E. Roper, A. Scheltema, F. G. Thompson, and J.D. Williams. 1988. *Common and scientific names of aquatic invertebrates from the United States and Canada: mollusks*. American Fisheries Society Special Publication 16, vii + 277pp., 12 color pages. US \$30 (cloth) and \$24 (paper); AMU members: \$24 and \$19.

This volume, first in a planned series on the aquatic invertebrate fauna of North America, is the product of a joint effort by the American Fisheries Society and the American Malacological Union. The purpose of the book is to provide a checklist of recognized species of North American mollusks and to recommend common names to correspond with accepted scientific names, so designed to "achieve uniformity and avoid confusion in nomenclature." It was not intended to impose scientific names, but to reach consensus on scientific names and generate a framework of common names that will become standard through continued usage. Approximately 5700 species from 332 families in 31 orders of 6 classes of mollusks (not including Aplousobranchia) are included in the list, covering native and introduced species from the United States and Canada (excluding Hawaii) living in fresh waters, marine waters from shoreline to 200 meters on the continental shelf, estuaries and terrestrial habitats. Common names are provided for most species, the exceptions being very small and/or poorly known species and taxonomic groups, or forms very difficult to identify.

Common names were selected according to a specific set of criteria, designed to reflect broad current usage, existing vernacular names, and desirable descriptive terms. Common names are expected to be used with appropriate scientific names, not as a substitute for them. It is hoped that this list will serve to identify taxonomic groups in need of revision, foster interest in studying little known areas and stimulate publication of systematic and distributional data on mollusks.

An alphabetical list of families covered begins the text of this volume, followed by a phylogenetic list arranged by class, order and family. An introductory section details the history and background, area of coverage, plan of the list, principles governing selection of common names, additional governing resolutions, future of this checklist, and acknowledgements. The body of this volume is the checklist, presented in a natural sequence of classes, orders, and families of mollusks, with genera and species arranged alphabetically within each family. Appendices list species known or thought to be extinct and those listed by the U. S. government as endangered or threatened. Species names are presented with author, date of description, and areas of occurrence (Atlantic, Pacific, Arctic, freshwater, terrestrial, estuarine, introduced, extinct), and then the suggested common name. A detailed index combining scientific and common names concludes the text, and there is finally provided a 12-page color "Portfolio of Mollusk Diversity."

This first edition is not intended to be the final word on the subject. Proposed changes assembled by the overseeing committee of the American Fisheries Society will be considered and revisions made where necessary; the second edition is planned for release five years after the first, with future editions every ten years thereafter. Future editions will add justifications for revisions, as a record of advances in mollusk research. It is important that everyone using this checklist make comments where warranted, helping to make this checklist a more complete and stable framework for the nomenclature of the North American molluscan fauna. This first edition will surely become an invaluable reference for anyone even remotely involved with mollusks. All those who worked on this checklist deserve the appreciation of all who will use it in years to come — without their cooperation, this pioneering work would not be nearly so complete or worthwhile.

— W.S.

## OOPS!

In Rüdiger Bieler's article in the March 1989 *American Conchologist*, "ARCHITECTONICIDAE: Why Some Sundials Are Shady," the captions to Figure 1 and Figures 2-5 were inadvertently switched. Our apologies, Rüdiger!

## BELOW CAPRICORN Part II

by F.R.E. Davies

### SIMPLY THE GREATEST

With the conclusion of my project in Uruguay, I was free to do a little private sightseeing before returning to Vancouver. My fascination with running water, especially falls and rapids, has led me, in my previous travels, to most of the well-known falls, from giants like Niagara and Victoria, through the long-drop narrow ones like Multnomah and Takaka in the Canadian Rockies, and even Angel Falls in the dark jungle of Venezuela. The most pleasing for me are the "curtain-class," with white water bouncing off extruding rock. But the falls visited I was about to see, Iguazu Falls, combines all three classes, especially during low water.

The Iguazu Falls (pronounced 'ee-gwaw-SOO) are on the river of that name just before it runs into the much larger Parana River at the point where Brasil, Argentina and Paraguay meet. The Falls, worn back by the river so that it is shaped like a half-kilometer long hairpin, carries about half the water flow of Niagara. This profile results in a massive Niagara-like flow at the bend of the "hairpin" and minor falls like cascading curtains all along the sides. Thus, the only way to really view this tremendous display is from an airplane. Our pilot looped 180 degrees to give us a full view of both sides.

For nearly sixty years, I've felt that the most soul-satisfying and awe-inspiring natural phenomenon was the Yellowstone geyser, "Old Faithful." (And this from a Canadian living in "Super Natural British Columbia!") But Now my vote goes to Iguazu Falls; buried in that vast South American jungle is simply the greatest!

### RIO AND RIOS

Some cities have acquired a special glamor; the mere mention evokes a yearning to visit and see for yourself: Timbuktu, Rome, Hong Kong, Paris, San Francisco. Such a city is Rio De Janeiro. You must see it.

But my special stop in Brazil was the small town of Rio Grande where I would find the University of that name. Here I would meet a man who had taught Inorganic Chemistry there for twenty-five years, but whose real interest was shells. About thirty five years ago, with the help of some friends, he founded the Rio Grande Oceanographic Museum. In 1971 he received his MSc (Malacology) at Tulane University, one of the illustrious students of Dr. Emily Vokes. This gentleman was Professor Eliézer de Carvalho Rios. Directing the museum is now his full-time occupation and, by appointment, I spent a full afternoon with him.

Truly an excellent museum of specimens and artifacts related to Brazilian waters, it is basically a working laboratory which concentrates on the seashells of Brazil. This coast stretches from the Caribbean Sea to the Uruguay border, and is the longest viable coastline of any country. The shell collection and depository of the museum are the largest in Latin America. Here are specimens of every recognized Brazilian mollusc — over 1400 species — and 7000 others. The research labs are fully equipped and staffed, and they operate as an integral part of the university.

Dr. Rios is one of our better-known malacologists because of his writings. In addition to over 50 papers on molluscs, he is author of the definitive text on Brazilian molluscs, an excellent book which I find extremely easy to use. Its coverage ranges far beyond Brazil's border — the two molluscan faunal zones which touch Brazil, the Caribbean and the Patagonian, extend along the entire Atlantic coast of South America and north along the Pacific coast north to Valparaiso, Chile. The many shellers the world over who have met Professor Elie Rios may be impressed by his competence as a researcher and teacher, but they have also discovered that he is a soft-spoken, friendly person, indeed a "gentleman and a scholar."

### THE OTHER SIDE OF PATAGONIA

With only a week left to me, I visited Chile, the one South American country I hadn't seen. The Uruguay club has close connections with

their Chilean counterparts, so I was able to make connections while still in Montevideo.

After settling in my Santiago hotel, I fixed my itinerary with a few phone calls. Next morning, I took the four-hour bus ride to the small town of Quillota, where I was the weekend guest of the Chilean Shell Club secretary, Guillermo Boldrini. We two retired gentlemen (ok, old fossils) had an entire weekend to talk shells. Sr. Boldrini had recently spent some time in western U.S.A. so our discussion ranged from Alaska to Tierra del Fuego, with side elements of concern over the shrinkage of local shell clubs. The Chilean club has many unique problems, dictated especially by their unusual geography, and by distance.

Sunday morning we bussed to Concon, a fishing village just north of Vina del Mar. It's the same the world over — the first place to look for shells is the local fish market. Bivalves predominate, but there's always the chance of a biggest or a best or even a brand new. After lunch we visited two excellent and beautifully displayed collections, the pride of Sra. Lena R. De Traverso and Sra. M. Isabel de Escobar. Both women also have an excellent knowledge of molluscs — they are not just collectors of pretty things.

After our return to Quillota in early evening, I looked over Sr. Boldrini's extensive collection, and into the late night we labelled and packaged the specimens which he offered me. Of course I had long since run out of trade shells, so now I owe him a bundle. Have faith, Guillermo, they will arrive someday!

#### Species list: Atlantic

*Adelomelon ancilla*  
*Adelomelon brasiliense*  
*Amiantis purpurata*  
*Anomalocardia brasiliense*  
*Astraea latispina*  
*Buccinanops gradatum*  
*Buccinanops moniliferum*  
*Buccinanops uruguayensis*  
*Bulla striata*  
*Chione cancellata*  
*Chione pubera*  
*Chlamys patagonicus*  
*Chlamys tehuelchus*  
*Collisella subrugosa*  
*Columbella moleculina*  
*Crepidula aculeata*  
*Crepidula protea*  
*Donax hanleyanus*  
*Diodora patagonica*  
*Felaniella vilardebeana*  
*Fissurella megatrema*  
*Fusitriton magellanicum*  
*Glycymeris longior*  
*Hastula cinerea*  
*Iphigenia brasiliense*  
*Lyropecten, nodosus*  
*Macra isabelleana*  
*Mesodesma mactroides*  
*Mytilus edulis platensis*  
*Mytella guyanensis*  
*Nassarius vibex*  
*Natica isabelleana*  
*Noetia bisulcata*  
*Odontocymbiola magellanica*  
*Olivancillaria contortuplicata*  
*Olivancillaria deshayesiana*  
*Olivancillaria urceus*  
*Olivancillaria uretai*  
*Olivancillaria vesica auricularia*  
*Olivella tehuelcha*  
*Ostrea puelchana*  
*Pecten ziczac*  
*Perna perna*  
*Petricola stellae*  
*Pitar fulminatus*  
*Plicatula gibbosa*  
*Protothaca antiqua*  
*Protothaca pectorina*  
*Sanguinolaria sanguinolenta*  
*Semele proficua*  
*Siphonaria lessoni*  
*Solen tehuelchus*  
*Strombus pugilis*  
*Tagelus plebeius*  
*Tegula viridula*

#### *Tegula patagonica*

*Tellina lineata*  
*Thais haemostoma*  
*Tivela isabelleana*  
*Tivela ventricosa*  
*Trachycardium muricatum*  
*Urosalpinx haneti*  
*Volva ebraea*  
*Zidona dufresnei*

#### Pacific:

*Acuminia venosa*  
*Ameghinomya antiqua*  
*Argobuccinum pustulosum*  
*Argobuccinum ranelliforme*  
*Argopecten purpuratus*  
*Aulacomya ater*  
*Chiton granosus*  
*Choromytilus chorus*  
*Collisella aroana*  
*Collisella d'Orbigny*  
*Collisella plana*  
*Collisella zebrena*  
*Concholepas concholepas*  
*Crassilabrum crassilabrum*  
*Crassostrea gigas*  
*Crepidula dilatata*  
*Cypraea caputdraconis*  
*Donax peruvianus*  
*Ensis macha*  
*Fissurella latimarginata*  
*Fissurella nigra*  
*Fissurella picta*  
*Littorina peruviana*  
*Mesodesma donacia*  
*Mulinia edulis*  
*Mytilus chilensis*  
*Nacella clypeator*  
*Nacella magellanica*  
*Nucella cocina*  
*Nucella crassilabrum*  
*Olivia peruviana castanea*  
*Olivia peruviana confinis*  
*Olivia peruviana fulgurata*  
*Olivia peruviana livida*  
*Olivia peruviana subcastanea*  
*Priene rude*  
*Protothaca thaca*  
*Rapana giganteus*  
*Scurria viridula*  
*Tegula atra*  
*Thais (Strombina) iquiquei*  
*Pholas (Thovana) chilensis*  
*Tiostraea chilensis*  
*Turritella cingulata*  
*Xanthochorus cassidiformis*

\*See Part I in Dec. 1988 American Conchologist.

\*Ted Davies is a retired organic chemist from British Columbia: 208-4001 Mt. Seymour Pkwy., N. Vancouver, B.C., Canada V7G 1C.

## SELMA (SAMMY) LAWSON, GRANDE DAME OF FLORIDA SHELLING

by Walter Sage, AMNH

One of the most respected and loved names in Florida shelling circles belongs to our friend Sammy. On the occasion of her 90th birthday later this month, it seems fitting to salute Sammy and her 40 years of shelling. Everyone who attends the Florida shell shows each season knows that Sammy loves to attend all the shells she can manage, and how many friends she has made over the years.

Sammy and her late husband, Art, moved to Florida in 1948, settling in the then tiny town of Pass-a-Grille, near St. Petersburg. Their interest in shells had grown from beach collecting to serious scientific study, and the quality of the collections assembled by Sammy and Art is well known. Their very extensive collection was sold in 1971 to Sarasota Jungle Gardens, where it can be seen today.

Traveling for shells has taken Sammy throughout Florida and the Caribbean, to New Zealand, Australia, the Philippines, Japan, and Hawaii. Her zest for life and love of shells has kept her young and has inspired many of her friends to a fuller appreciation of the natural beauty of shells. Sammy's enthusiasm is truly infectious, and it's no wonder that, when she visits a show, her friends crowd 'round, all wanting to show her something, or tell her something new they've learned.

Sammy has received many awards for her scientific collections and artistic arrangements, and has served as judge at many shows. Her most recent honor was having the St. Petersburg Show's "Most Beautiful" Award renamed the Selma "Sammy" Lawson Award in reward for her devotion and dedication to the St. Petersburg Shell



Alfredo Romeu receiving the first Sammy Lawson Award (Most Beautiful Display) from Sammy Lawson. The award was for Dr. Romeu's Cuban *Polymita*.

Club since 1948. We join in thanking Sammy for all she has done for shell collecting and shellers and look forward to seeing her at Florida shows for many years to come.

## SOME SUGGESTIONS FOR SHELL COLLECTORS IN GENERAL AND ABALONE COLLECTORS IN PARTICULAR

by Byron W. Travis

It seems that shell collectors come in varieties, just like shells. Many of us simply collect shells, and go no further. We pick up, purchase or accumulate shells in general, finding any shell interesting. If we collect this way, we soon find that we have a great many shells and know little about any of them. This approach satisfies some collectors and is a lovely way to collect shells.

But others of us apply ourselves to a more particular study in a single field, a single family or group of mollusks. We find this gives us a special enjoyment in our hobby. By concentrating our energies, we are able to study that field much more adequately and appreciatively, to devote more time and to accumulate much more knowledge in our chosen area of study. We don't spend money on shells which really are no more than a passing interest to us, and we don't require vast amounts of space to house and display our accumulation.

I happen to collect Haliotidae, the abalones. I started years ago when a friend and I went to San Juan Capistrano to harvest abalone to eat — they are really good!. From there I became interested in shells in general, and made a general collection — the California beaches were generous to collectors. But the abalones have always been my favorites (though I got sidetracked on Xenophoridae, the carrier shells, for a while).

I gathered much detail from Robert Talmadge, now deceased, who was a notable student of the Haliotidae. He told me, among other things, never to return to San Juan Capistrano, because developers had destroyed my beach spot, like so many others, with fill. Today, so far as I know, with Talmadge gone, there are only three of us collectors seriously working with the abalone: Jo Kotora in Florida, Katherine Stewart of Carmel, California, and I. And there is no special book covering the group. I think it a shame and would like to see others take up the interest. It is with that goal in mind that I undertake these ramblings.

The literature available, as far as my own shelf is concerned, deals mostly with the California abalone. *Oceans Magazine* ran a good article in no 6, 1972. Wagner and Abbott's 1964 catalog devoted its first

section to the variety of abalones and the interesting and bewildering collection of names for each broad species. It seems collectors in the early days were ignorant of the work of other collectors, and perhaps plain ignorant as well, and they gave new names to the species with abandon. Actually, where there seems to be a great number of abalones, we have only a great number of names, a situation benefiting only the dealers among us. The 1964 *Standard Catalog* is the only source of this information I know of, and has saved me much trouble. Even so, many juveniles are easily confused with mature small species, so the collector must watch out!

Other references on the group include the 1978 *Abalone Book* by Peter Howorth, and various, often out-of-print booklets by the California Fish and Game office. Tom Hale, a member of our club, the Oregon Society of Conchologists, has done some study of *H. kamschatkana*, diving to watch them eating and spawning in the seaweed. Such observations have not been widely described. Much work on the abalones prior to the 20th century: Linné, 1758; Reeve, 1846; Sowerby, 1882; Wood, 1828; Leach, 1817; Dall, 1878 and so forth. The works of these men are available in museums. But I like collectors today who are sorting things out, observing when they dive.

The abalone can be found in shallow water or deep, rough seas or calm waters. Years ago, perhaps ten or twenty, *H. rufescens* were planted in Whale Cove, south of Depoe Bay, Oregon. So far as I know, they have refused to spawn in that quiet water. I gather they desire rough seas, where waves batter rocks near the shores. That is where I found these algae-feeding vegetarians in California. Other species feed on sea weeds in deeper depths.

Without adequate references, we are very dependent upon dealers' descriptions. Once I took half a dozen small shells with me to a club meeting and asked members to tell them apart. They all looked alike, but varied as to locality and dealer identification. No one dared say anything.

If you are in search of a specialty, this family may be the one for you. And if you are already an abalone collector, get in touch with the rest of us so that we can share our resources and pool our findings.



### RENATE WITTING SKINNER 1922-1989



photo: Cecilia Abbott

Conchologists around the world will be saddened to learn of the untimely death of Renate Witting Skinner and her husband Edward, of Greenville, North Carolina, on March 24, 1989. Born on December 2, 1922 in Dresden, Germany, Renate became a registered nurse in Dresden in 1951. She received a degree in Hotel Management in

Hanover, Germany in 1954.

From 1954 to 1971 she was the owner and manager of a large hotel on Bali Island, Indonesia. She long had an interest in shells, particularly the Olividae and the land mollusks of Indonesia. She collected extensively throughout the Lesser Sunda Islands, and was fluent in German, English, Indonesian and Thai. She contributed to the German Club Conchylia and several American shell club newsletters, but her most extensive contribution was a lengthy chapter on the biology and habitats of Balinese Olividae in Greifeneder's 1981 "Beitrage zur Kenntnis der Olividae."

On Bali she created a small museum of shells, trained Mr. Berate as a collector, and raised *Amphidromus* land snails. She first joined the Hawaiian Malacological Society in 1965, and later became active in the North Carolina Shell Club, the COA, the Jacksonville, Long Island, New York and Keppel Bay (Queensland) Shell Clubs.

She had recently donated a display of shells to the Science and Nature Center of River Park in Greenville. Renate was a beautiful lady of sweet disposition who was always very helpful to fellow conchologists. (R. Tucker Abbott).

### COCKLE CORRIGENDUM

by Harry G. Lee

Walter Sage of the American Museum — and your editorial board — has called my attention to a study by Ponder *et al.*, which evaluates the taxonomic position of the cockle *Hemidonax*. Based on the anatomy of the soft parts, including the lack of the classic geniculate or "flexed" foot, and of the shell's hinge, they determined that *Hemidonax* was more remote to the Cardiidae than was thought previously (and reported by me last issue). They resurrect the family name Hemidonacidae Iredale and McMichael, 1962, to accommodate members of this group, which I had treated as a subfamily in my report. Thus these cockles constitute a group on the same taxonomic level as the "true" cockles (Cardiidae), the giant clams (Tridacnidae) and the freshwater cockles (Lymnocardidae). Note I've retained the vernacular "cockles" to soften the impact of their estrangement. Ponder *et al.* include a fine review (with illustrations and descriptions) of the five recent species and one subspecies.

Ponder, W.F., P.H. Colman, C.M. Yonge and M.H. Colman, 1981. The taxonomic position of *Hemidonax* Moorch, 1871 with a review of the genus (Bivalvia: J. Malac. Soc. Australia 5 (1-2): 41-64. August 31.

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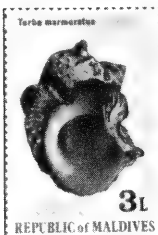
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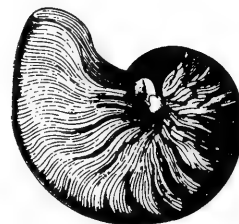


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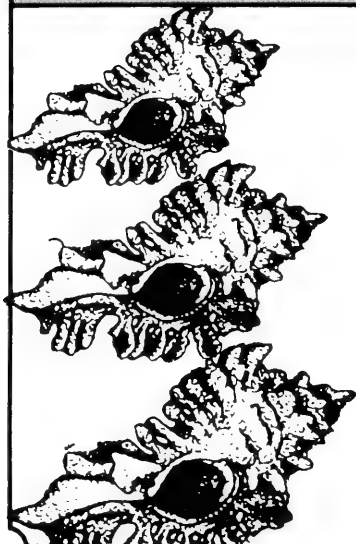
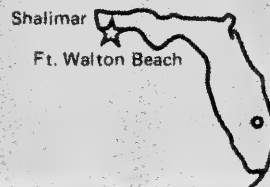
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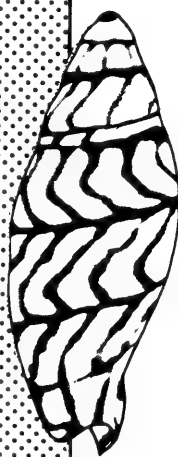
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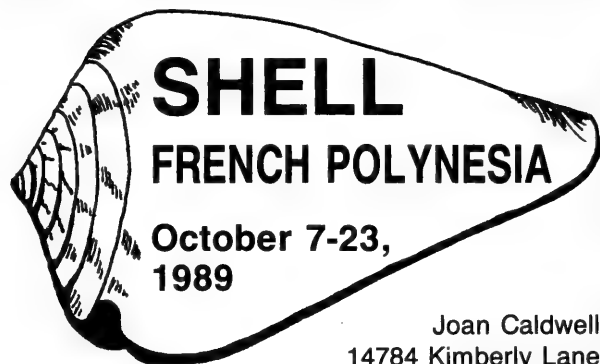
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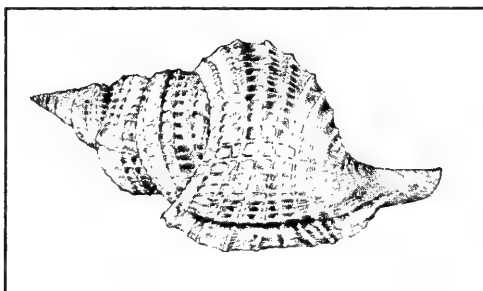
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 17, NO. 3

SEPTEMBER 1989



## CONCHOLOGISTS OF AMERICA, INC.

**A Collective Devotion To  
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COVER: "African Frills, Frills, and More Frills" - Clockwise from left: *Homalocantha digitata* (Sowerby, 1841) from off Dahlak, Ethiopia, 54mm; *Homalocantha cf. digitata* from off Dissai Ist, Ethiopia, 48mm, and *Homalocantha anatomica* (Perry, 1811) off Mozambique. Photos courtesy of Dr. Emily Vokes.

## PRESIDENT'S MESSAGE

Though I should be used to it by now, I'm constantly delighted to find that, wherever I travel, I find some nice person in the fraternity of Shell Collectors. And I travel a lot. Though mostly to seashore areas! Just last week, I was visiting Spanish Wells, a small cay to the north of Eleuthera, Bahamas. Heading for the resort and lunch, I spotted a sign, "Ponderosa Shell Shop." Of course, I had the driver stop, and a delightful episode ensued: meeting Phyllis Roberts and viewing her collection of local shells (actually, drooling over some of them!).

In Tobago, we contracted to go diving with Jane Boyle, who runs Dive Tobago. Turns out Jane is an avid shell collector and hopes to write a pamphlet on the shells of Tobago. We visited her home and saw the astonishing variety of shells she's collected in a small area over a ten-year period. We also have mutual friends in American museums, where she goes to research shells whenever she can.

I happened to be in Hong Kong during a meeting of the Hong Kong Shell Society at a member's house. I was given dinner, a book on Hong Kong shells, and an invitation to visit a very beautiful home and collection belonging to a remarkable Chinese gentleman.

These are just typical episodes of the type that add zest to life and travel. Shell collectors all over the world love to talk shells with other collectors, and through years of writing ahead to shellers in areas I'm planning to visit (or calling at the last minute), I've never been snubbed or disappointed with my contact. Rather, my life has been enriched by seeing not only their collections, but their homes and lifestyles as well. Often, my new friends suggest shelling spots nearby or take me there themselves. Once I got so caught up in looking at a shell collection that it got rather late and I ended up spending the night! In the morning I went to a recommended shelling spot and found a species new to my collection. (I never did get to the Sanibel Shell Fair, which was the original object of my trip!)

I guess my point is that we have not only a delightful hobby but an opportunity to extend our world of human contact and understanding. Through organizations like the COA we can meet these as-yet-unknown friends. (And be met by them!) During membership drives we emphasize advantages such as this fine publication, which gets better every year, and the Conventions, at which we can increase our knowledge of shells and our collections, and can meet our friends. But the greatest good, to me, comes of the expanded world of friends available. We've become international in scope and interest, and about a thousand strong. How about telling a friend about COA and expanding his horizons as well.

Peggy Williams

## IMPORTANT NEWS ABOUT YOUR COA MEMBERSHIP!

Please notice that there is a membership renewal form accompanying this issue. **Treasurer Walter Sage** requests that you complete and return it with your membership check for 1990.

AS COA grows, **American Conchologist** expands, and inflation takes its toll, our costs go up. As a result, COA single membership rates for the calendar year 1990 will increase from \$10.00 to \$12.50, for the U.S., Canada and Mexico. Family, club and organizational membership will cost \$15.00. The Caribbean, Central and South America remain at \$20.00, but all members outside the Western Hemisphere will pay \$25.00. This last change is necessary because of increased postal costs.

Also, please note that the COA membership year is a **calendar year**. Even though you join in May, or in August, you are a member for that calendar year only, and your subscription to **American Conchologist** is for that year only. **ALL COA memberships expire at the end of December.**

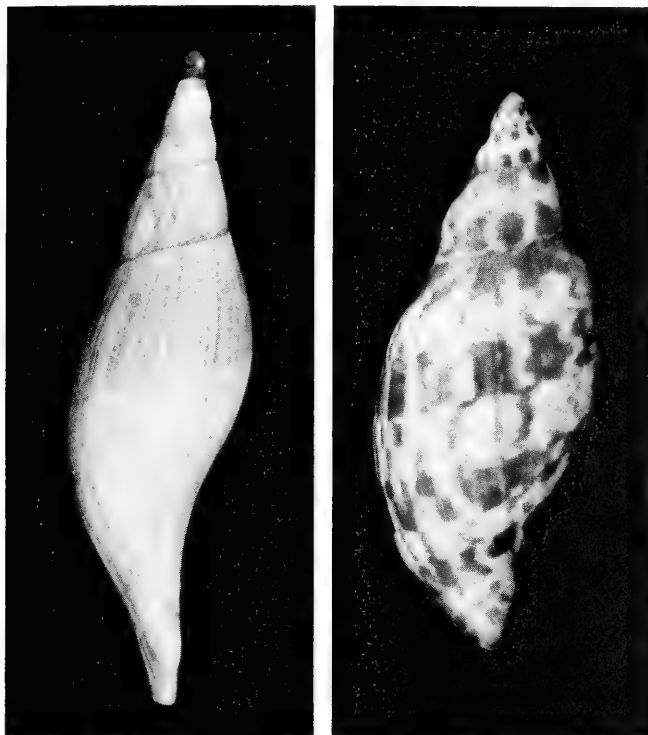
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## TWO RARE VOLUTES FROM YUCATAN; OR

### A Short Story of the Golden Age of Shelling in the Southern Gulf of Mexico

by Emilio García



*Scaphella macginnorum* García and Emerson, 1987. Holotype. *Scaphella contoyensis* Emerson and Old, 1979.

Photos by the author

Around 1950 the Mexican government gave permission to American shrimpers to trawl along the northern coast of the Yucatan Peninsula and the Yucatan Channel. Fortunately for conchologists, some of the captains of those boats and their wives were interested in shells, and they brought back with them the specimens they caught in their nets. Eventually, they began to experiment with different types of dredges, and species that had been eluding their nets began to appear. Outstanding among these collectors were Tom and Barbara McGinn of Louisiana and Donna and Riley Black of Florida.



*Vasum latiriforme* Rehder and Abbott, 1951.



*Busycon* sp. Unidentified specimen dredged in the Yucatan Channel. The shell markings are purplish-brown.

The 1950's and 60's were a bonanza for collectors of species from the southern Gulf of Mexico. It was not difficult to obtain magnificent specimens of *Scaphella junonia butleri* Clench, 1953, probably the most beautiful form of the species; or the elegant *Fasciolaria lilium branhamae* Rehder and Abbott, 1951; or the rare and interesting *Vasum latiriforme* Rehder and Abbott, 1951; and cone collectors were finally able to fill the empty niche set aside for the hitherto unobtainable *Conus sennottorum* Rehder and Abbott, 1951. These were the years when such localities as Cabo Catoche and Contoy Light were as commonplace in collectors' logs as Punta Engano in the Philippines is today.

The peak of these productive years was reached in the early 70's, when bigger shrimping gear and modified dredges made it possible for the captains to collect deeper and more efficiently. It was in this period when two fascinating new species of volutes, *Scaphella contoyensis* Emerson and Old, 1979 and *S. macginnorum* García and Emerson, 1987 were collected.

Both of these species are very distinct and cannot be confused with other *Scaphella*. *S. contoyensis* is readily recognizable by the fragile, inflated body whorl of mature specimens and by its distinct markings which, as the authors state, "are somewhat reminiscent of Australian species of *Ericusa* and *Cymbiolista*." The twenty or so specimens known were dredged in about 200 to 550 feet off Cabo Catoche. In its deeper range, it is sympatric with *Scaphella macginnorum*.

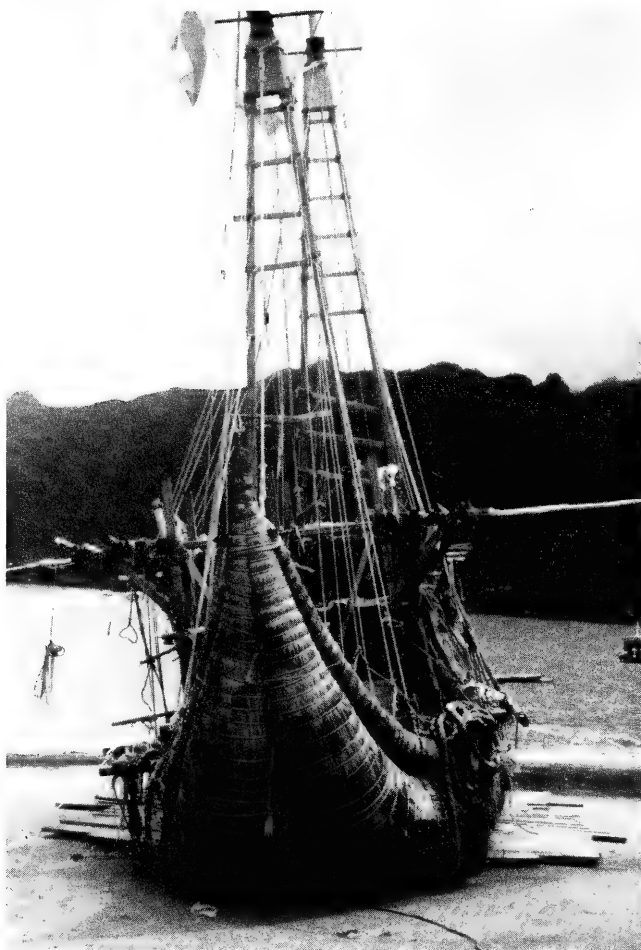
*S. macginnorum* seems to have a deeper habitat. The only two known specimens, one of them a juvenile, were collected in 600 to 1100 feet of water. The shell coloration is lightish tan with a lighter colored submedial band on the body whorl. Its beautifully tapered fusiform shell more than makes up in elegance of form for what the species lacks in markings. It is closest to *S. dubia kieneri* Clench, 1946 but differs from it in coloration, and by having a larger protoconch (8mm+) and three well-defined plaits in the columella of the mature specimen. This species and *S. contoyensis* are rather large; adult specimens of the latter reach at least 173mm while the only known adult specimen of *macginnorum* is 153mm in length. It is my impression that this specimen is not fully grown because its outer lip is still very thin; therefore the species could possibly reach a much larger size, perhaps even the nine inches that *S. dubia kieneri* attains.

American shrimp boat operations in Mexican waters have ceased since the mid 70's, and Mexican shrimping is practically non-existent at this time. We cannot expect, therefore, any increase in the known number of specimens of these two rare volutes in the foreseeable future, and should be thankful to the McGinns and the Rileys for making available to many of us all of these uncommon and rare species.

#### References:

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"La Balsa URU" stern, showing the rotting reed bottom and the list.

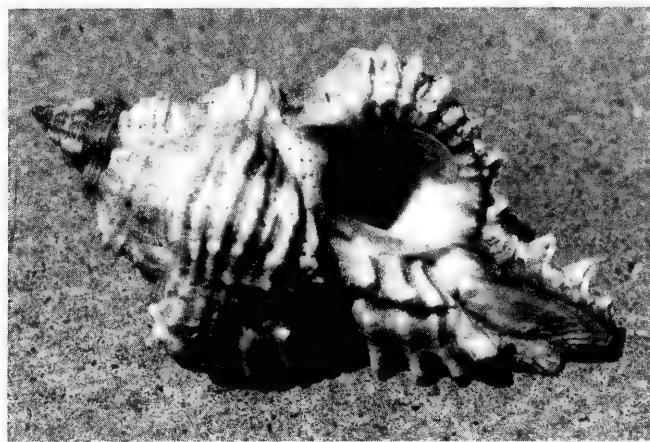
## NUKU HIVA, THE MARQUESAS HENUA ENANA (TERRE DES HOMMES) PART II

by Aurora Richards

The great highlight of my stay in Tahiti is the arrival of "La Balsa URU" on the 23rd of August. A great ocean-going reed boat built by the people of Titicaca and christened by Thor Heyerdahl: it has left Callao, in Peru, 54 days ago, and, guided by winds and currents alone, has made its way into Taiohae Bay, once more giving evidence to the now-accepted theory that the Marquesas were colonized by navigators from the Peruvian coast. The six courageous lads crewing the raft are Spanish and Peruvian. They have planned to sail on westwards to other Polynesian islands, but the URU has suffered damage from battering waves and is listing to port. Part of the reed bottom is rotting and the steering oar is broken. Their initial destination, Nuku Hiva, proves also to be their ultimate.

By now the local population has adopted me, even though they are naturally shy of "popas" or foreigners. As in Easter Island, where the natives called me "Aotea" (= Daybreak), my name is translated to "Hahakateiao," a tongue-twisting equivalent in Marquesan. Wood-carvers are creating new "Tikis" out of sandalwood for my collection of artifacts. Aimata, my new shell-friend, a nice, open-hearted, pure Polynesian young woman, is initiating me into the secret craft of coconut carving.

At dawn one morning she takes me to her favorite snorkeling spot, and by mid-morning we have made some exciting finds: *Conus panniculus* Lamarck, 1810; large, black *Cypraea mauritiana* Linné, 1758 and *C. maculifera* (Schilder, 1932); two mature *Drupa morum iodostoma* (Lesson, 1840); *Cymatium pileare intermedium* (Pease,



*Murex thomasi* (65 x 37.4mm) in 100 feet, same habitat as *Conus gauguini* and *C. adamsonii*.



*Cyrtulus serotinus* (86.1mm and 82.4mm).

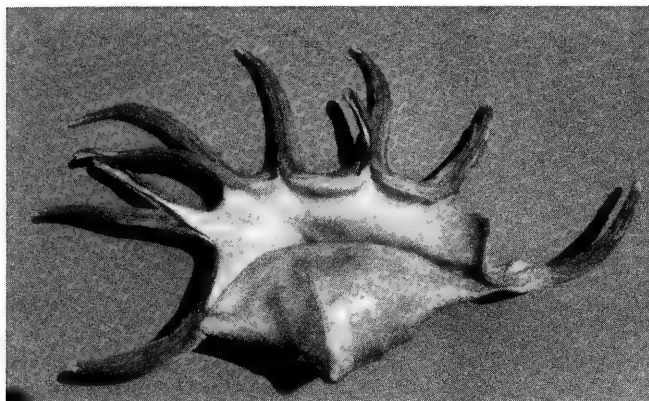


*Conus adamsonii*. This gorgeous specimen was taken live by Gregg Hamann, of San Diego (46.2 x 27mm).

1869); several *Nebularia rubritincta* (Reeve, 1844), a small local form; and a whole colony of pretty, colorful little *Aplustrum amplustre* (Linné, 1758). We add to these, repeats of cones we found earlier. *Cypraea caputserpentis* f. *caputanguis* are abundant in most places.

The prize finds though are some very dark *Cypraea helvola callista* Shaw, 1909; a local form of round, inflated *Cypraea teres* Gmelin, 1791, and many dark, almost blue-black, *Cypraea fimbriata* Gmelin, 1791 with red animals. Among the *C. fimbriata* is a small cowrie of the same color (10.5x6.2mm) which I tentatively identify as *Cypraea contaminata* Sowerby, 1832, identical to those I have found in a similar habitat in New Britain, New Guinea. But on checking, I find that the species has never been reported from the Marquesas, so I decide to wait and compare it with the New Guinea *C. contaminata* and *Cypraea gracilis* Gaskoin, 1849 which is much larger. My small intruder has intermediate characters and is very bewildering. There have been cases of species that reach far distances and develop as odd individuals, but in insufficient numbers to cause the species to become permanently established. Can it possibly be a stray, or an unrecorded Marquesan race of *C. contaminata* or *C. gracilis*?

Thanks to friendly Aimata and her crack diver brother, I become the lucky owner of a bagful of real goodies they have kept in reserve for the right occasion: two large *Cyrtulus serotinus* Hinds, 1844 (86.1mm and 82.4mm, against the Wagner world record of 78.8mm mentioned in HSN in October '88); a superb *Lambis crocata pilsbryi* Abbott, 1961, with ten digitations; a dead-taken, but good, specimen



*Lambis crocata pilsbryi* with ten digitations (190mm).

of *Murex thomasi* (Crosse, 1872); some good beach *Cypraea cassiaui* Burgess, 1965; and a *Cypraea c.f. fischeri*, probably subspecies *astaryi* (Schilder, 1971) as Michel Boutet of Tahiti, the French Polynesian shell expert, has already reported the shell from the Marquesas. The other highly desirable endemics {*Conus gauguini* Richard & Salvat, 1974; *Conus adamsonii* Broderip, 1836; *Neocancilla arenacea* (Dunker, 1852), etc. . . .} are occasionally available from various

localities of the islands, but at high prices, even when collected dead. Although the shells are not really rare once their habitats have been discovered, SCUBA diving is perilous and practically impossible in unprotected locations, owing to the permanent turbulent conditions of the sea crashing against the high cliffs.

When I leave Taiohae, my local friends come to see me off at the wharf. The weather is bright and the sea has subsided. The boat trip back to the airport is a feast for my eyes, a succession of gorgeous land and seascapes that will remain with me all my life. After the ordeal of another long wait in that terminal building, I fly back to Papeete, my mind full of pictures, my heart light, my notebook heavy.

#### Post scriptum:

On a recent shelling trip to East Australia, I visited Walter O. Cernohorsky at his Terranora, New South Wales, home. In the course of our conversation, he examined some of the mysterious New Guinea species, and I also showed him the *Cypraea c.f. contaminata* collected at Nuku Hiva. With some surprise he confirmed my initial identification — the species is without any possible doubt *Cypraea contaminata* Sowerby, never before reported from the Marquesas. This discovery extends the Pacific range of the species eastward by several thousand kilometers. Both species have dark (slate blue) dorsums, a result of their basaltic sand habitat in Tahiti.

## WANDERINGS OF AN ITINERANT MALACOLOGIST IV

### *Trivia exigua* (Gray, 1831)

by Donald R. Shasky, M.D.

*Trivia exigua* is a small species, about 3-5mm. It is white with red spots on the dorsum of the shell. Its distribution is the central and western Pacific, and its habitat is subtidal.

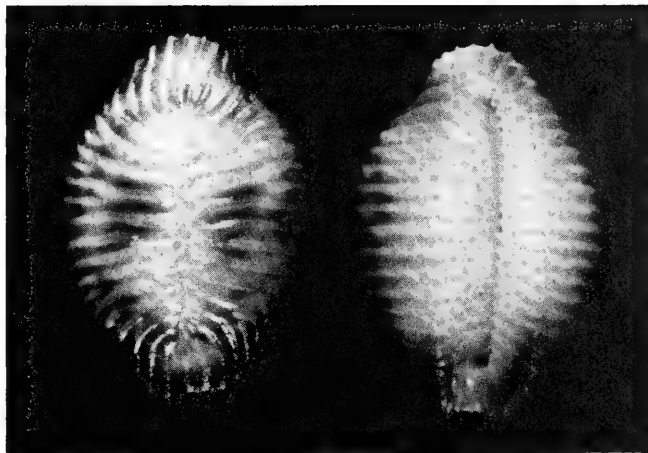
While we were diving at Cuastecomate, Jalisco, Mexico in 1968, Dr. James McLain of the Los Angeles Museum taught me how to greatly increase my yield of shells by vigorously shaking rocks and dead coral into my collecting bag. I buy the largest dive bag available, remove the net in the bottom, and then sew it closed. In 1968, however, I was using canvas coin bags that were mine for the asking from the Bank of America. The first time I tried Jim's method, it produced ten specimens of the rare columbellid, *Microcythara uncinata* (Sowerby, 1832). I immediately became a devout believer.

Since then this method has produced thousands of specimens of shells that I could not see when I picked up the rock or coral they inhabited. Incidentally, this method works very well intertidally also. Instead of a dive bag, I carry a three-to-five gallon plastic pail about one-half full of water and do my shaking into that.

In 1985, I had an opportunity to spend two weeks diving on Midway Island, which is next to the last island in the Hawaiian Chain. One afternoon, I was taken to the northwest side of the reef to dive down into a cave in the reef. The water over the reef that afternoon was only four or five inches deep, so we had to pull ourselves along the width of the reef to get to the opening into the cave. Once there, we turned on our nightlights and descended into a dark tunnel that bottomed at 25 feet. Each piece of dead coral was covered with silt, so just moving anything produced a cloud around us. We saw no shells of any sort, but I proceeded to shake everything I picked up into my bag, which meant I had to put up with the swirling silt. As far as I could tell, the dive was a waste of time. Once back on shore after everything in my bag had been put through two sizes of screens and the material had been dried, I was surprised at how many shells were living in the cave. The real treasure was my first *Trivia exigua*.

In September 1986, I found my second specimen in 35-55 feet while diving on an offshore reef near Kawaihae, Hawaii.

My third and last specimen was taken in 25 feet off Toigne Island,



*Trivia exigua* (Gray, 1831) — Two views of same shell. Midway Island. 5.2mm.

Poum Bay, New Caledonia. The specimen is about 2mm in length and may be sub-adult.

For the reader who is interested in microscopic shells that live in a rocky or coral habitat, there is no way that one can find the quality or the quantity of specimens and species, except by the method described above.

Each spring from 1983-1988 has found me diving at Cocos Island, Costa Rica. Next time, I will describe a dive on the wild side, which is virtually every side of Cocos Island.

**SHELL CLUBS: OUR FILES ARE OUT OF DATE. PLEASE SEND THE NAME AND ADDRESS OF YOUR CURRENT COA CLUB REPRESENTATIVE TO COA VICE PRESIDENT HANK FOGLINO, 4 TRENT COURT, SMITHTOWN, NEW YORK 11787.**



photos by Peggy Williams

Yokosuka, Japan — Tom exiting van in driveway. Land snails found here.

## ADVENTURES IN JAPAN, PART II

by Peggy Williams

After our visit to the southern island of Kyushu, Tom and I returned to Tokyo, where we were met by Dr. Sadao Kosuge, a Japanese malacologist whom we had met when he visited the Sarasota Shell Show. He accompanied us on the train to Yokosuka, a city south of Tokyo where there is a large naval base. When we arrived we were met by several other shell collectors who had also travelled by train from various parts of the country and were all there for the next morning's field trip. A resident of the city picked us up in a mini-van (actually only some of us, since we wouldn't all fit at once) and took us to his home. I think he measured the van when he bought it, or else had it made to fit his driveway! We drove through increasingly narrower streets, literally turned a U, and had to get out before the house because the driveway was too narrow to open both doors! No space is wasted in the cities of this populous country.

His home is beautiful, however, and his wife and female relatives had worked long and hard to create a traditional Japanese meal — a feast of 20 or so dishes, from peanuts (eat those with chopsticks!) to octopus, including our third serving of raw cuttlefish. The visiting men all took a bath before dinner. There were about a dozen men and me at the table (women don't usually join such a party except to serve), one of whom spoke very good English (I think he was invited as a translator, but he was put at the opposite end of the table from us!). The party was a riotous success. They were impressed that we could handle the chopsticks so well (there weren't any forks in the house anyway) and kept offering us new and different things to eat, laughing at our reactions. Though we weren't wild about the food (cuttlefish is downright slippery on the tongue), we managed to be polite and fill up as well.

Our host and hostess (she collects land snails) brought out their collections, mostly Japanese and Philippine shells. There was a dehumidifying chamber with shells in it from a recent trip to the Philippines — they don't pull out the animal, they simply desiccate it inside the shell! I had brought shells from home and traded with three or four of the men, some of whom had brought shells from the far northern area of Japan. After dinner and trading, I showed slides of living Caribbean shells and, with broken English, broken Japanese, translating and lots of gesturing, explained where and how I had found them. By this time, we were all jolly and carefree, having consumed about thirty liters of beer and a couple of bottles of saki. (I drink Coke, though my neighbor kept trying to get me to try the beer.) Finally, Tom and I were taken to a local hotel for the night, while the guys bedded down on the floor at the house.

In the morning, Dr. Kosuge and our host picked us up and gave us a brief tour of the town, then took us home for breakfast. We

were served ham and eggs, which was nice for us, since we didn't relish what the others were eating. There were flat sheets of dried green seaweed to mix up with raw egg and drink out of a teacup, but we passed it up. It was difficult enough eating a slab of ham with chopsticks! After breakfast we went outside to load up for the drive to the seaport, and I found a couple of land snails in the garden.

Down at the port, we parked near the ways where local fishermen draw up their boats, and immediately began finding shells that had been eaten and discarded, including murex, tritons and volutes! Soon I began finding live shells too, especially the Hairy Triton, *Cymatium parthenopeum* (von Salis, 1793) which may be called *C. echo* Kuroda & Habe, 1939 here. There were also *Charonia sauliae* (Reeve, 1844), another triton, *Kelletia lischkei* Kuroda, a 3-4" pure white whelk, a couple of *Chicoreus asianus* Kuroda, 1942, and some neptunea that had been someone's dinner. The Hairy Tritons were living on the dense green algae on the ways at the low tide line.



Sheller and fisherwoman at harbor ways.



Rocks at harbor.

Moving along the waterfront, we investigated some fishermen's nets and pots where we found oyster drills, then moved to large intertidal rocks where there were lots of chitons. Being a chiton nut, I was ecstatic, and when someone gave me a rock with a species of *Placiphorella*, a genus I have longed to collect, everyone laughed at my delighted reaction. Down between the long fingers of rock, there were lots of turnable rocks with myriad species of shells underneath, and I soon filled several bags and bottles with shells, all new to my collection. As we hiked farther around the peninsula, we found more and different shells at each location, til we finally gave up, tired, and climbed the hill to the road and the car. On the way I found one more land snail, *Euhadra periomphala*. Everywhere were friendly and helpful people, smiling and polite, though I know they thought we were crazy. Children and women were hunting for edible snails,

and it's really surprising that there were so many living shells still in that location.

We returned to Tokyo that afternoon and left in the morning for Hong Kong. We had spent eight days with wonderful, friendly people and had been privileged to see and do things most tourists will never experience, mostly because we share a love of shells with people all over the world. When I returned home I found a package of shells awaiting me, a generous gift from a collector whom we had only had time to meet in a train station. What a wonderful world!

## BEST OF THE NEWSLETTERS

*We've been slow to get to the following article...it was first published last November in the Sanibel-Captiva Junonia, then in the April-May 1989 Laddergram of the Palmetto Shell Club, Columbia, SC. Next, the Astronaut Trail Capsule reprinted it. But we think it is a worthy enough contribution to reprint yet again. It is by one of the world's best, and best known shell photographers, Pete Carmichael, and its subject is, of course,*

## PHOTOGRAPHING SHELLS

by Pete Carmichael

Photographing shells can be endlessly creative and exciting. I began fifteen years ago and my interest has not flagged in the least. In fact, after thousands of pictures, I still enjoy dreaming up new ways of composing and lighting shells.

Shell photography is rather simple compared to other types of nature photography. First off, shells don't wiggle around — unless, of course, you want to tackle live critters. We'll discuss that in a minute. For still-life shots of shells themselves, you can do best by using the following basic equipment: a 35mm single-lens-reflex camera; a macro lens with a focal length of 90mm, 100mm, or 105mm; a polarizing filter; a sturdy tripod; a cable release for tripping the camera's shutter; and a fairly large piece of white cardboard to use as a reflector.

Many amateur photographers feel that they cannot be encumbered by a tripod, but as all professionals will quickly tell you, the tripod insures maximum sharpness while allowing you to expose at even the slowest shutter speeds. You will generally want to expose shells at a lens aperture of f/22 for maximum depth of field. Selecting such a small aperture usually means exposing at a shutter speed that is too slow for hand-holding the camera. Personally, I think using a tripod gives you a feeling of more deliberation and makes you concentrate a bit harder on good composition.

As for film, I formerly used Kodachrome 25 or Kodachrome 64 slide film and Kodacolor print film all the time. I still use Kodachrome in the evenings and early mornings. Mostly, however, I have switched to Fujichrome for slides, not only because of its intense colors, but also because in most cities you can get one-day processing and mounting of slides. I would recommend Fuji 50 or Fuji 100 for slides and either Kodacolor or Fujicolor for prints.

As a background or stage for your shells, there are several readily available natural materials — sand, rock, weathered wood, old fishing nets, etc. With rare or expensive shells, it is better to bring these background materials to a place near your house that is sheltered from the wind, and where you can arrange a safe table-top set-up. You don't want one of your rare shells exposed to damage or loss by trying to pose it in a setting over which you have no control — near the beach, for example. When using natural backgrounds, keep them very simple. If the background is too complicated, the shell tends to get lost visually.

Side lighting by the sun is usually the most effective, since it accentuates the sculpturing of the shell. I also like to backlight shells, particularly when the lip of the shell seems to glow as sunlight passes through it. Use your white cardboard reflector to bounce sunlight

into the shadows of the side of the shell opposite the sunlit side. This is very important for a more natural look.

A bad habit of many beginning photographers is to let the primary subject fill only a small part of the total picture area. Learn to move in close enough with your macro lens that the shell or shells dominate the picture — at least 75% of the total area of the slide or negative.

I cannot overemphasize the value of a polarizing filter. As the polarizer is turned, you can actually see through the viewer of your camera how this filter removes or restores brilliant reflections. Generally, I like to cut off the most objectionable reflections and leave just a few of the sun's highlights on the shell to add some sparkle.

An interesting technique for obtaining shadowless pictures is to place the shell on a piece of flat pictureglass that is suspended horizontally about two feet above the ground. I prefer to use non-glare glass for this technique. Use a piece of glass that is at least 16 by 20 inches. You can use two chair seats to support the ends of the glass. Place a piece of colored matte board flat on the ground beneath the glass. Since you can see through the glass to the sunlit matte board below, the shell does not seem to cast any shadows. Using the polarizing filter in this case not only removes glare from the shell, but from the glass as well. Use whatever background color you like to complement the colors in your shell.

To photograph live shells, you are much better off using electronic flash than natural light, since the flash fires fast enough to stop subject motion as well as camera movement. (You will not be using the tripod in this case.) Keep your animal alive and active. Place a flat rock or a piece of sand-colored tile (about 10 inches square) in the bottom of a cooking tray that is about four inches deep. Fill the tray with clean, recently-obtained ocean water. Clean the snail's shell as well as possible and place the live critter on the flat rock or tile. When it emerges, it will spread out its foot and slither about, but it will not be able to dig down as it would in its natural mud or sand habitat. Move your flash unit close enough so that you can use a lens aperture of f/22 for maximum depth of field.

There are endless refinements and variations on the simple concepts I have just given you. Many of my former photography students have started with these basic ideas and have come up with innovations that are startlingly beautiful. You can do the same. Stick with it and you will have many years of creative fun with your shell photography.

## IN MEMORIAM

Jo Kotora  
Captain Tom Clifford

## SANIBEL MUSEUM NAMES ADVISORY BOARD



Five leading malacologists will help guide and advise Dr. R. Tucker Abbott in his capacity as Founding Director of the proposed Sanibel Shell Museum.

The five are: Professor Ruth D. Turner of Harvard University, expert on shipworms and other burrowing bivalves; Professor Emily H. Vokes of Tulane University, known for her work with fossils and murexes; Dr. Fred G. Thompson, curator of mollusks at the Florida Museum of Natural History in Gainesville; William G. Lyons, senior malacologist at the Florida State Marine Research Institute in St. Petersburg; and M.G. Harasewych, associate curator of mollusks at the Smithsonian and editor of *The Nautilus*.

"Though our emphasis will be on education, public exhibits and informational services," says Dr. Abbott, "we need the guidance of these experts in planning the museum and its future activities."



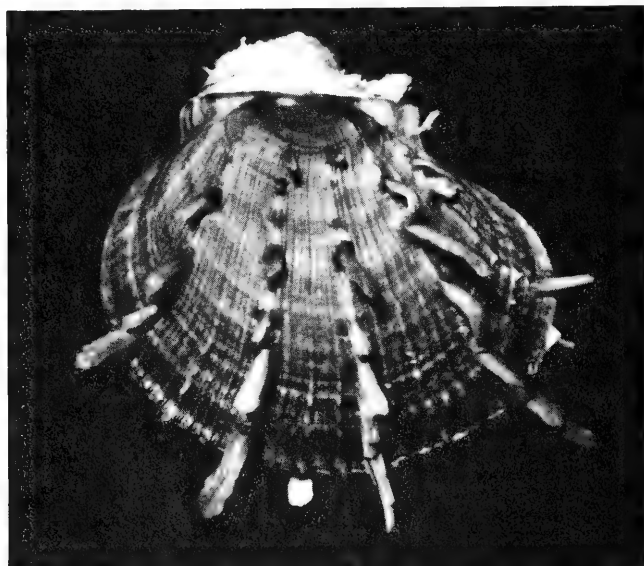
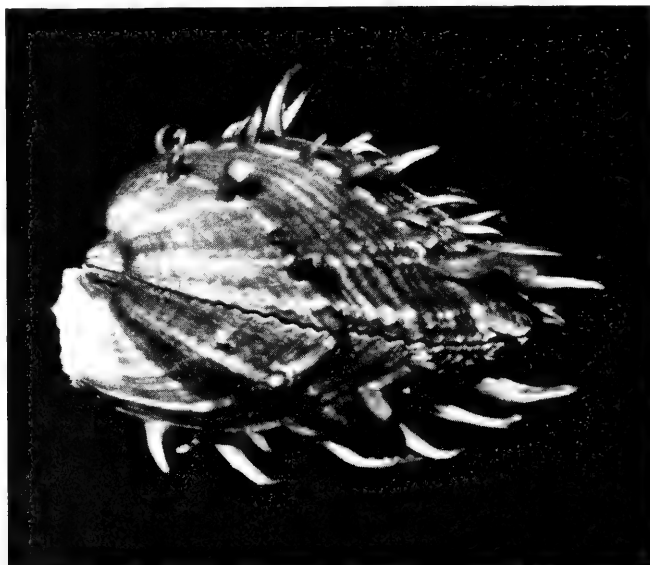


Plate I. Top and side view of *Spondylus gilvus* Reeve.



photos by the author

## ON SPONDYLUS GILVUS REEVE

by Emilio F. García

Anyone who dares call an American *Spondylus* anything but *americanus* or *ictericus* does so at the risk of life, property, family and friends; nevertheless, I tried just that in the June issue of *American Conchologist* with *S. erinaceus* Reeve, 1856 and I survived, so here I go again.

The single target for my introductory remarks is the incredible variability of both *S. americanus* Hermann, 1781 and *S. ictericus* Reeve, 1856, particularly the latter. I have seen more than 300 specimens of *S. americanus* in a single garage, and at least 200 specimens of *S. ictericus* from different localities. While I did not have many problems with the former, the latter species has been much more difficult. When I saw my first specimens of *S. erinaceus* Reeve, 1856 in the Lesser Antilles, however, they were so different from the other two species that I thought the buck had to stop there. Still, I did not dare to speak the unspeakable until I obtained my own specimen in Honduras. Since then, I have seen Colombian *erinaceus* that, although somewhat more spiny than the Honduran forms, still match Reeve's description of *erinaceus*.

Until recently, all I knew of another species, *Spondylus gilvus* Reeve, 1856 was the author's description and the original drawing. I had not read any other literature on it, nor had I seen specimens purporting to be this species. Because of the great infraspecific variability of the family and of Reeve's brief original description, I had doubts as to the validity of the species; and even after Mr. Kevin Lamprell treated the taxon in his monograph on *Spondylus*, my skepticism remained. From Mr. Lamprell's treatment of the species, both in his book and in his article in *American Conchologist*, it appears that his access to specimens of *gilvus* was limited and that they were in poor condition.

Reeve's description is as follows: "Shell somewhat triangularly ovate, rudely globose, radiately superficially ridged, four distant ridges obsoletely obtusely scaled; deep livid red, scarlet towards the umbo." He adds in later remarks that it is "livid purplish-red." In reality, the species ranges in color from solid purplish red with red umbos, as Reeve described it, to white with purplish-red to pinkish maculations. These appear on the shell in somewhat irregular

blotches, rarely forming concentric bands. The name "*gilvus*" (= yellow) is rather misleading because, except for one solid yellow specimen in the series examined, the regular coloration of the species is as described above.

The specimens known to Reeve seem to have been in such poor condition that he considered the species to be "almost denuded of sculpture." The sculpture in good specimens, however, is as follows: there are from five to six primary ridges, the most posterior being the weakest, and often obsolete. The most anterior is also weak, having at times only one or two prominent spines. In worn specimens,

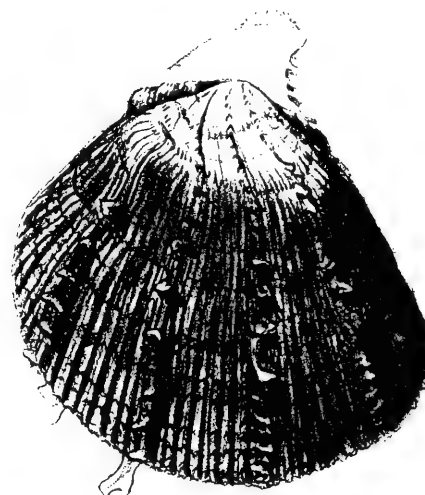


Figure 1. Original figure of *Spondylus gilvus* in Reeve's *Conchologia Iconica*.

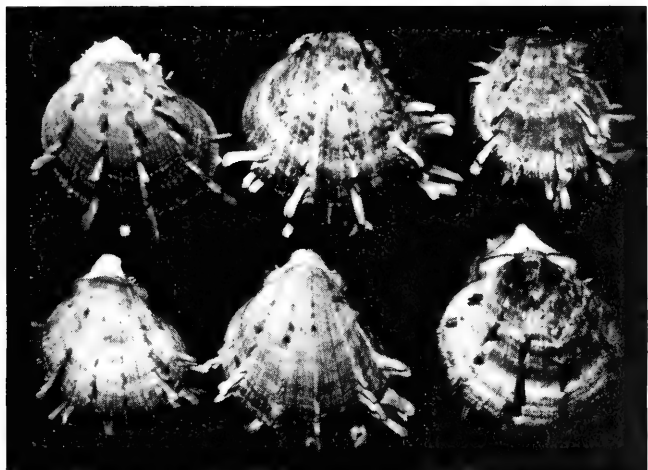


Plate II. Series of *S. gilvus* showing variations in shape, markings and spine formations. All from the general vicinity of Recife, Brazil.

it seems that the species has only four ridges, as Reeve says. Between the primary ridges, there are from five to thirteen well-defined scabrous secondary ribs, the middle being the strongest and, at least in all the specimens examined, having spiny projections, either short and blunt or longer and thinner. Some specimens have spines on all the secondary ribs. The spines on the primary ridge can also be rather short and blunt or up to 18mm in the specimens I have examined; they can be very thin or spatulate, and are more prominent towards the margin of the shell. The inside margin is crenulated and, oddly enough, yellow in most cases, even when the outer surface has absolutely no hint of such color. A solid purplish-red specimen in my collection has the expected inner margin of the same color, but it also has a yellow band interior to that. Unfortunately, all of the specimens I have examined come from the same general vicinity of

Recife, Brazil, and this, and perhaps other features I have described, may be environmental and not diagnostic of the species.

Reeve's drawing of *S. gilvus* clearly shows the characteristic TRIANGULARLY OVATE SHAPE, SOMEWHAT PRODUCED AT THE ANTERIOR END, that separates this from all other American species. It seems closest to *S. erinaceus*, from which it differs in its more triangular outline, in having a less globose upper valve and in the sculpture of the secondary ribs; besides, all the specimens of *S. erinaceus* I have seen have a rather saffron coloration. Although *S. ictericus* specimens are quite variable, they normally exhibit a proportionately longer (measured umbones to margin) shell, always have a more depressed profile and, as far as I know, grow much larger than *S. gilvus*. Prof. E. C. Rios, in his *Seashells of Brazil*, pictures a typical old *S. ictericus* to illustrate that species, but his illustration of *S. americanus* seems to be *S. gilvus*.

The largest specimen of *S. gilvus* I have examined measures only 68mm. This, however, may be due to the fact that larger specimens are more eroded and are not collected.

Obviously, there will be disagreements with my arguments for acceptance of Reeve's two taxa. My intent is only to take two series of spondylids which, in my view, do not fit into the variation of *S. americanus* or *S. ictericus*, and which, I think, are referable to Reeve's *S. erinaceus* and *S. gilvus*. I feel much more comfortable with this conclusion than with the less controversial view of lumping all left-overs into *S. ictericus*. Or is it *S. americanus*? At least, I hope that my comments in these matters will help other amateurs like me until there is a professional willing to do anatomical studies.

**ACKNOWLEDGEMENTS:** My thanks to Dr. Emily Vokes for making available to me literature essential to this article and to Dr. and Mrs. Dionisus Cacioppo and Mrs. Miriam Silvey, of the Louisiana Malacological Society, for the loan of specimens.

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Reeve, L. 1856. *Conchologia Iconica*. London. Vol. ix, pl. XI.

## The Anthony D'Attilio Student Research Grant

As a result of a donation by Annita and the late Morris Levine, the San Diego Shell Club is privileged to offer a one time student award, known as the Anthony D'Attilio Student Research Grant in Malacology. This single research grant of \$1000 to a graduate student in a U.S. academic institution may involve research on marine, land or freshwater mollusks. Completed applications must be received no later than December 1, 1989. For further information on eligibility, requirements and projects to be considered for funding, contact Carole Hertz, 3883 Mt. Blackburn Ave., San Diego, CA 92111. Phone (619) 277-6259.

## Monographs of Marine Mollusca Changes Hands

The malacological journal, *Monographs of Marine Mollusca*, formerly published by American Malacologists, Inc., with Dr. R. Tucker Abbott as editor-in-chief, will from now on be published by Trophon Corporation which already publishes *The Nautilus* (business office: Trophon Corporation, 8911 Alton Parkway, Silver Spring, MD 20910, USA).

The new editor-in-chief is Dr. Rüdiger Bieler (editorial office: Delaware Museum of Natural History, P.O. Box 3937, Wilmington, DE 19807, USA). The editorial board consists of Drs. R. Tucker Abbott and M.G. Harasewych as associate editors and an international panel of consulting editors.

The journal will continue to publish systematic monographs of Recent and fossil marine mollusks. The next number (no. 4) will be a monograph by W.O. Cernohorsky on Mitridae and Vexillidae, with an expected publication date in December of this year.

## A New State Shell!



Both Thomas Hale, president of the Oregon Society of Conchologists, and our old friend, Margaret Teskey, write that Oregon now has an official state shell. In late May, five O.S.C. members, Maxine and Tom Hale, (COA past president) Wayne Stevens and Marjorie Stevens, and Bob Nickelson went to Salem to attend the presentation of the state shell proposition to the Oregon Senate. A day later, the *Fusitriton oregonensis* became the twelfth state shell.

*Fusitriton oregonensis* (Redfield, 1848) has a long range, from Alaska to Baja California. It is found intertidally to 300 feet deep. The hairy periostracum and size — to three inches — are good features to note.

## ...And A New Shell Club Pin

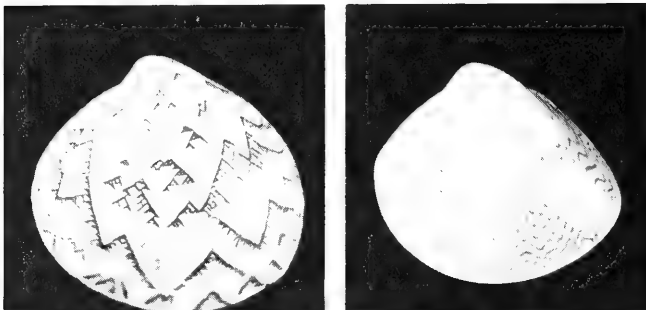
And listen up, all you pin collectors! Tom Hale and Margaret Teskey also write that the Oregon Society of Conchologists now has an official club pin, "available to club members and their friends." And the emblem on that shell? You might have guessed! *Fusitriton oregonensis*!

**Class BIVALVIA (Linné, 1758)**  
**Superfamily VENERACEA (Rafinesque, 1815)**  
**Family Veneridae (Rafinesque, 1815)**

by G.H.J. Cox

Part II

PITARINAE (cont.)



*Lioconcha castrensis* (Linné, 1758).

*Lioconcha hieroglyphica* (Conrad, 1837).

*Amiantis* Carpenter, 1864. *Amiantis callosa* (Conrad, 1837). 75-115mm. Longer than high; beaks pointing anteriorly; hard, heavy, glossy, with neat concentric ribs. Small, heart-shaped lunule, pressed in slightly under the beaks. Solid ivory. Common; California to South Mexico.

*Saxidomus* Conrad, 1837. *Saxidomus giganteus* (Deshayes, 1839). 75-100mm. Oblong with beaks near anterior end. No lunule; large ligament; valves slightly gaping posteriorly. Usually nearly smooth. Interior of shell entirely white. Possibly this is only an ecologic or geographical variant of *Saxidomus nuttalli* Conrad, 1837, but lacks the rust colored stain of that shell and the concentric lamellae, and never has an interior purple flush posteriorly. Aleutian Islands to Monterey, California.

*Lioconcha* Mörch, 1853. *Lioconcha castrensis* (Linné, 1758). To 35mm. Thick, roundly ovate, smooth; prominent, smallish umbones. Creamy with zigzag black or brown streaks and spots. Common; Indo-Pacific.

*Lioconcha hieroglyphica* (Conrad, 1837). Similar to the above, but markings look like hieroglyphics. Southwest Pacific.

Other genera: *Anofia* Reymont, 1955; *Aphrodina* Conrad, 1869; *Callocardia* A. Adams, 1864; *Calva* Popenoe, 1937; *Dollfusia* Cossmann, 1886; *Dosiniopsis* Conrad, 1864; *Megapitaria* Grant & Gale, 1931; *Notocallista* Iredale, 1924 and others.

SMARANGIINAE Keen, 1969. Shells inequilateral, quadrate, resembling some Arctidae, surface unsculptured; hinge veneroid, with all pustular, tending to be deeply bifid; pallial line entire.

*Samarangia* Dall, 1902. *Samarangia triangularis* (Adams & Reeve, 1850) Periostracum present, encrusted with agglutinated sandy material. Recent, East Indies.

DOSINIINAE Deshayes, 1853. Shell suborbicular. Hinge line with three cardinal teeth in the left and three or four in the right valve; left valve with an anterior lateral fitting into a groove in the right valve, and sometimes a posterior right lateral.

*Dosinia* Scopoli, 1777. *Dosinia discus* (Reeve, 1850). 50-75mm. Nearly circular with about 50 fine concentric ridges per inch. Glossy straw yellow. Virginia to Texas, Bahamas.

*Dosinia dunkeri* (Philippi, 1844). To 56mm. Surface covered with fine, regular concentric ribs. Angular pallial sinus points to middle or upper part of anterior muscle scar. Common; Gulf of California to Peru.

*Dosinia ponderosa* (Gray, 1838). Largest *Dosinia* and one of largest Veneridae. To 145x139mm. A well-developed specimen of this shell with its coarse concentric sculpture and heavy hinge is unmistakable. W. Mexico to northern Peru.

CYCLININAE Frizzell, 1936. Like Dosiniinae in shape, but without anterior lateral teeth or incised lunule.

*Cyclinella* Dall, 1902. *Cyclinella tenuis* (Recluz, 1852). To 25mm. Circular, moderately compressed; dull white sculpture of numerous irregular growth lines. Often mistaken for a small *Dosinia*. Moderately common, Virginia to Texas and Brazil. The Pacific counterpart is *Cyclinella singleyi* (Dall, 1902).

Other genera: *Cyprimeria* Conrad, 1864; *Frigichione* Fletcher, 1938; *Cyclina* Deshayes, 1850; *Luciploma* Olsson, 1942.

GEMMINAE Dall, 1902. Small or minute shells, usually with a plain or concentrically striated surface with marginal grooves and denticles simulating posterior and anterior lateral teeth; inner ventral margin crenulate.

*Gemma* Deshayes, 1853. *Gemma gemma* (Totten, 1834). 3-4mm. Subtrigonal, thin-shelled, moderately inflated. Polished; numerous fine concentric furrows or riblets. Pallial sinus upward pointing and usually about the length of posterior muscle scar. Whitish to tan with purple over beaks and posterior. Common; Canada to Texas; Puget Sound.

Other genera: *Parastarte* Conrad, 1862; *Plesiastarte* Fischer, 1887; *Rohini* Semper, 1862.

CLEMENTIINAE Frizzell, 1936. Shell thin, inequilateral; without escutcheon; sculpture subdued or wanting; inner ventral margin smooth; hinge without lateral teeth.

*Clementia* Gray, 1842. *Clementia solida* (Dall, 1902) Known only from a single valve collected many years ago at Topolobampo, Mexico.

*Clementia papyracea* (Gray, 1842). 45mm. Rather large; thin, inflated; obliquely oval. Posterior dorsal margin is long and rather straight. Prominent, obliquely forward umbone. Small, weak hinge plate with three small cardinal teeth. Mantle line deeply sinuated. Surface of obtusely undulated ridges. White with a thin, yellowish periostracum. Uncommon; Japan, Southwest Pacific.

*Compsomyx* Stewart, 1930. *Compsomyx subdiaphana* (Carpenter, 1864). 40-65mm. Elongate-ovate; moderately inflated; beaks anterior and forward pointing; smooth but for fine irregular growth lines; lunule poorly defined. Three cardinal teeth in each valve, posterior one in right valve deeply split. Chalky white; yellowish white and glossy in young shells. Alaska to Gulf of California.

Other genera: *Psathura* Deshayes, 1858; *Thetiopsis* Meek, 1875.

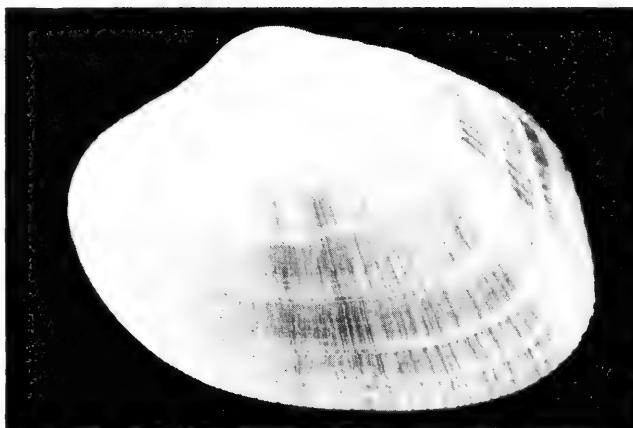
TAPETINAE Adams & Adams, 1857. Ovate to elongate, the inner margins smooth, at least posteriorly; hinge plate narrow, lacking lateral teeth.

*Tapes* Megerle von Muhlfield, 1811. *Tapes literatus* (Linné, 1758) 40-90mm. Ovate-rhomboidal; moderately compressed; almost parallel ventral and posterior margins. Fine concentric grooves strongest posteriorly. Creamy with fine brown zigzag lines and blotches. Common; Indo-Pacific.

*Tapes philippinarum* Adams & Reeve, 1850. To 35mm. Numerous radial and concentric striae, nodulose at point of intersection; radial ribs slightly more prominent. Ligament protruding above platform; lunule narrowly heart-shaped; beaks off center, anterior, adductor scars equi-sized, pallial sinus heel-shaped; internal margin smooth. Usually cream, rayed, banded or blotched brown; some uniformly cream; interior white to pinkish; pallial area pale yellow; hinge line frequently purple. Common throughout tropical Pacific.

*Paphia* Röding, 1798. *Paphia textile* (Gmelin, 1791). 40-50mm. Ovate-elliptical, with long, straight posterior dorsal margin; gently curved ventral margin. Concentric growth lines, but otherwise smooth, very glossy. Creamy with fine, pale zigzag and lozenge marks. White inside. Indo-Pacific, Indian Ocean.

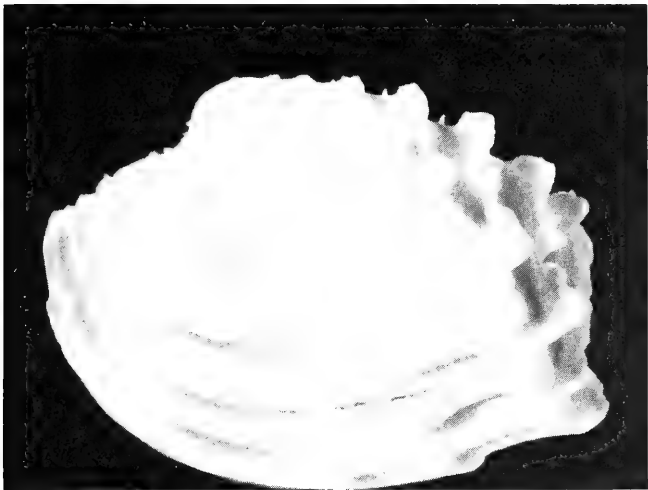
*Venerupis* Lamarck, 1818. *Venerupis decussata* (Linné, 1758). 50-80mm. Solid, broadly oval, moderately inflated; broad, low umbones; prominent, thick, inset ligament. Elongate, heart-shaped lunule. Strong radial ribs and concentric grooves producing well defined decussate surface. Clear growth stages. Moderately glossy. White to pale brown; may be blotched, streaked or rayed with darker brown. White inside, sometimes tinted with orange or purple. Common; boreal, Mediterranean, West Africa.



*Venerupis decussata* (Linné, 1758).

photo by Philip R. Dance

\*G.H.J. Cox, 8. Chapel Pond Drive, North Warnborough, Odiham, Hampshire, RG25 IEF, England, is a longtime member of the British Shell Collectors' Club, and a bivalve aficionado whose exhibit on Veneridae won the 1981 COA Trophy at the British Shell Show.



*Bassina disjecta* (Perry, 1811).

CHIONINAE Frizzell, 1936. Ovate-trigonal, inequilateral, with cancellate sculpture; inner margins crenulate in most forms; hinge plate with no anterior lateral teeth; lunule normally present; escutcheon, if present, beveled; pallial sinus mostly short, ascending.

*Chione* Megerle von Muhlfield, 1811. *Chione cancellata* (Linné, 1758). 25-45mm. Thick, solid, trigonal. Strong concentric and coarse radial ribs. Long, smooth escutcheon with six or seven brown stripes. Whitish, sometimes blotched and rayed brown; interior white tinged with purple-blue. Common; Transatlantic, Caribbean.



Walter Sage, Co-Chair Joan Pierson and Dr. Abbott discuss the festivities at the Shellers' Jamboree in Clearwater.

## SHELLERS' JAMBOREE IS A HIT!

The germ of an idea four years old turned to reality over Memorial Day weekend when 151 avid shellers attended the **Suncoast Conchologists'** brainchild, the **Shellers' Jamboree**, in Clearwater.

"Let's do it again!" was the cry after 2½ days of shell fun. Every club in Florida was represented, Georgia, Louisiana and Texas were there, and **Walter Sage** even came down from New York!

After **Suncoast Conchologists'** pot-luck lunch on Saturday, Emcee **Dick Forbush** introduced **Dr. R. Tucker Abbott** who gave a brief update on the Sanibel Shell Museum, and Dave Green who spoke on the influence that pectens and cowries have had on man.

Then, at the Shell Market, at 25 tables rented by the attendees, everything went up for sale, from clocks to coral to crafts, and shells, shells, shells! When one tired of shopping, concurrently running were a Silent Auction, a record size shell display, and **Dr. Harry Lee's** Identification Clinic, while **Tucker Abbott** and **Al Deynzer** were measuring for world record size shells. Would you believe 16 new records?

*Anomalocardia* Schumacher, 1817. *Anomalocardia flexuosa* (Linné, 1758). 30-40mm. Moderately thick, solid, inflated, elongate-trigonal, with attenuated posterior end. Ill-defined lunule; long, narrow escutcheon; prominent external ligament. Coarse concentric ridges fade anteriorly. Strong radial ridges on posterior. Whitish, yellowish or pale brownish; three or four broad, interrupted purplish rays; interior creamy yellow, pale purple at margins. Common; Indo-Pacific. *Anomalocardia squamosa* (Linné, 1758). 20-40mm. Very thick, trigonal. Moderately pointed posterior end. Large, heart-shaped lunule. Ventral margins crenulate within. Numerous nodulose or scaly, close-spaced radial ribs become obsolete posteriorly. Yellowish white, sometimes with yellow or brown; interior white. Common; Indo-Pacific, West Pacific, Japonic.

*Bassina* Jukes-Browne, 1914. *Bassina disjecta* (Perry, 1811). 60-70mm. Thin, elongate-ovate, compressed; ventral and posterior dorsal margins almost parallel. About six thin, well-developed concentric lamellae are turned upwards at their outer edges. Creamy white with pink lamellae. Common; South Australia, Tasmania.

*Chamelea* Mörch, 1853. *Chamelea gallina* (Linné, 1758). *Chamelea striatula* (Da Costa, 1778). 25-45mm. Solid, ovate, trigonal shells with narrow close-set concentric ridges. No radial ornament. Lunule short, heart-shaped; escutcheon elliptical. Usually three cardinal teeth per valve; no lateral teeth. Pallial sinus shallow. Few species, European and Mediterranean waters. Very common.

Other genera: *Clausinella* Gray, 1851; *Hinemoana* Marwick, 1927; *Humilaria* Grant & Gale, 1931; *Mercenaria* Schumacher, 1817; *Placamen* Iredale, 1925; *Protothaca* Dall, 1902; *Tawera* Marwick, 1927; *Timoclea* Brown, 1827.

I shall be glad to help any collector with further information on the shells of the Veneridae.

Also, see A. Myra Keen's 1969 treatment of the superfamily Veneracea in *Treatise on Invertebrate Paleontology*, Part N, Bivalvia 2, pp. N670-N688.



Esther Lewis of Sarasota gets a congratulatory hug from Dr. Abbott for her first place *Cypraea fultoni* in the Single Specimen Shell Show.

Capping off the day were an Alatus Hunt (Suncoast Conchologists' emblem), a catered dinner, and a program by Carolyn Petrikin and **Bob Pierson**, "Baja Adventure."

After coffee and doughnuts on Sunday, **Norman Paschall** shared his love and knowledge of wentletraps, and **Jim Cordy** delighted everyone with his beautiful slides of Caribbean pectens. A highlight of the morning was the unique (!) and popular **Parade of Snails**. Picture some 300 snails of crystal, brass, ceramic or whatever, wending their way back and forth for 42 feet! And then there was the **Single Specimen Shell Show**, judged by **Dr. Abbott**, **Jim Cordy**, **Al Deynzer** and **Dave Green**.

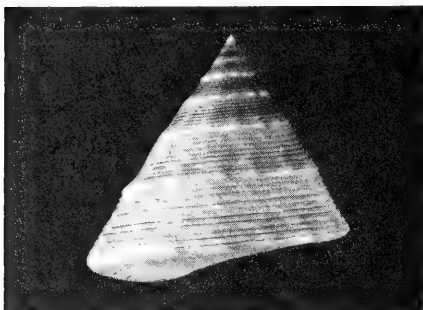
After the catered lunch, bidding raged hot and hectic at the **Shell Auction** for the 119 lots of shells offered for sale. Sunday evening featured a **Banquet** and Tucker Abbott's "Mollusks of the Bahamas," in which he reminisced about the early shelling experiences that led him to choose malacology as his profession.

On Monday morning, 52 die-hards descended on the **Sarasota Fossil Pit**, especially opened for the Jamboree, to scour the mounds of goodies in the boiling sun for one last fling, at the close of one of the greatest shelling get-togethers Florida has ever seen.



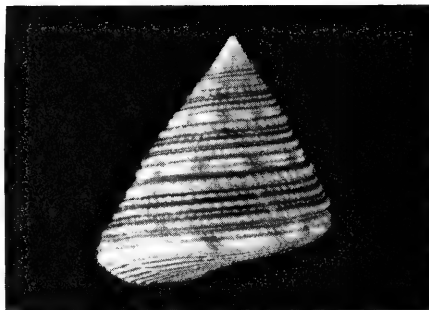
# CARIBBEAN CALLIOSTOMAS

by Kevan Sunderland

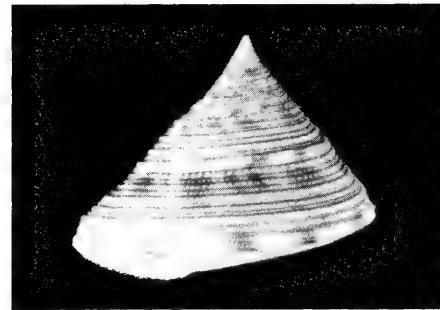


*Calliostoma javanicum* (Gmelin, 1791) - 40' Pickle's Reef, Key Largo, Florida. 24mm.

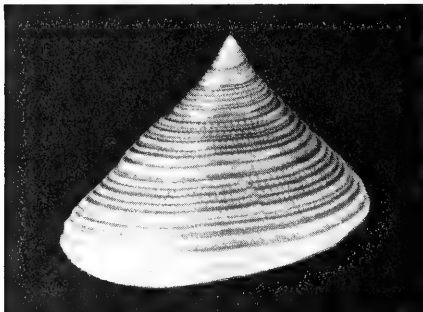
photos by Kevan Sunderland



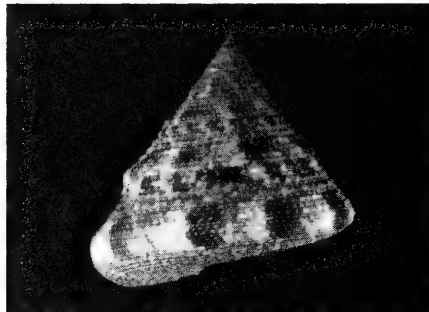
*Calliostoma bairdii* Verill & Smith, 1880 - 800' Cape Hatteras, North Carolina. 30mm.



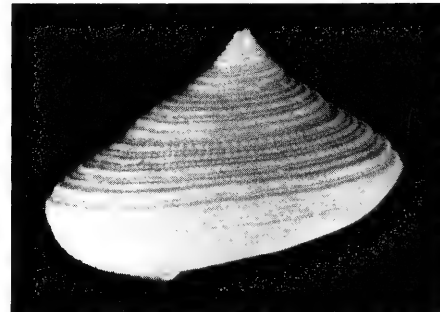
*Calliostoma rosewateri* Clench & Turner, 1960 - 900' Key West, Florida. 27mm.



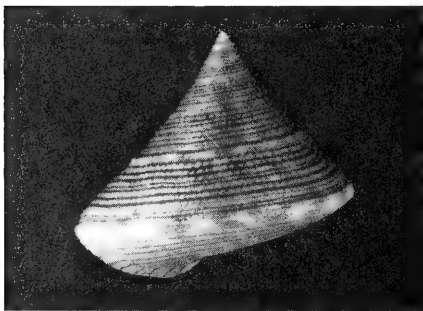
*Calliostoma springeri* Clench & Turner, 1960 - 720' Key West, Florida. 23mm.



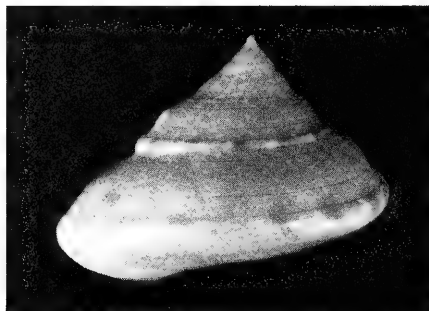
*Calliostoma bullisi* Clench & Turner, 1960 - 380' Recife, Brazil. 29mm.



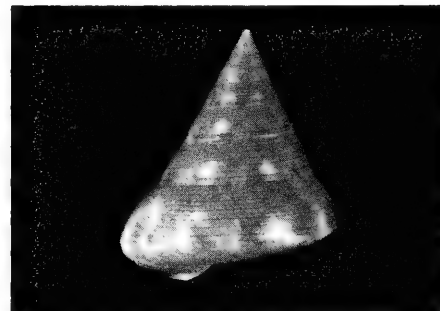
*Calliostoma benedicti* Dall, 1889 - 80' Key West, Florida. 20mm.



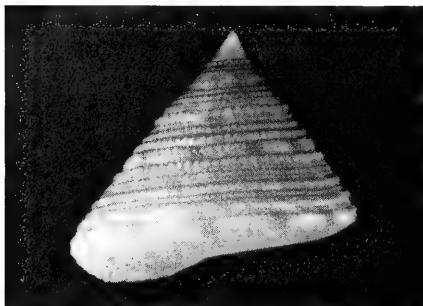
*Calliostoma sayanum* Dall, 1889 - 1000' Cape Canaveral, Florida. 20mm.



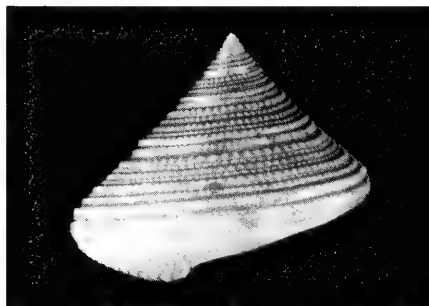
*Calliostoma brunneum* (Dall, 1881) - 540' San Salvador. 22mm.



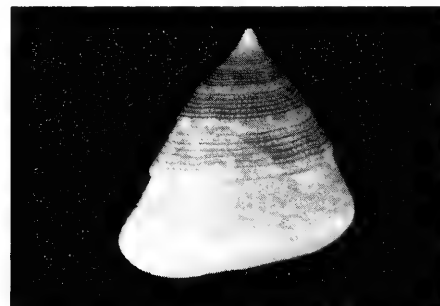
*Calliostoma marionae* Dall, 1906 - 180' Key West, Florida. 27mm.



*Calliostoma psyche* Dall, 1889 - 1100' South of Dry Tortugas, Florida. 20mm.



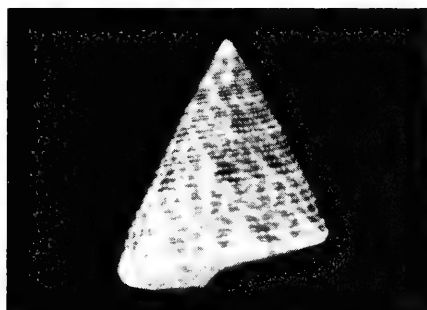
*Calliostoma hendersoni* Dall, 1927 - 1100' South of Dry Tortugas, Florida. 18mm.



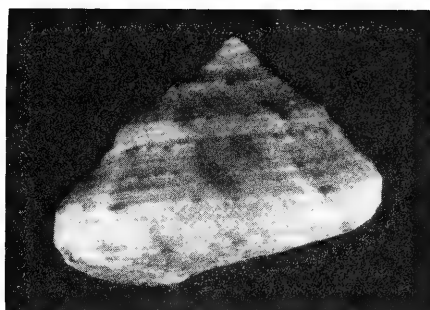
*Calliostoma barbouri* Clench & Aguayo, 1946 - 300' South coast of Cuba. 18mm.

## References:

- Abbott, R.T. American Seashells. Second Edition. Van Nostrand Reinhold Company, New York.  
 Clench, W. J. and R.D. Turner, 1960. The Genus *Calliostoma* in the Western Atlantic. Johnsonia 4(40): 1-80.



*Calliostoma adela* Schwenkel, 1951 - 80' Key West, Florida. 18mm.



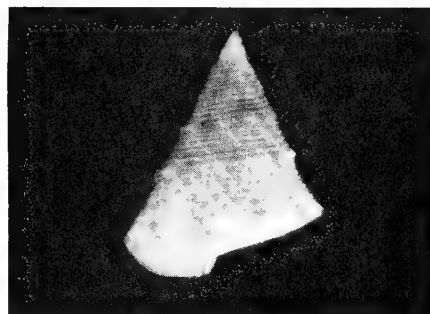
*Calliostoma yucatecanum* Dall, 1881 - 200' Cape Canaveral, Florida. 11mm.



*Calliostoma circumcinctum* Dall, 1880 - 1100' South of Dry Tortugas, Florida. 13mm.



*Calliostoma sericifilum* Dall, 1889 - 500' Barbados. 9mm.



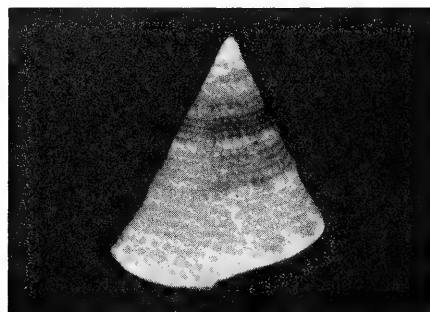
*Calliostoma indiana* Dall, 1889 - 840' Barbados. 11mm.



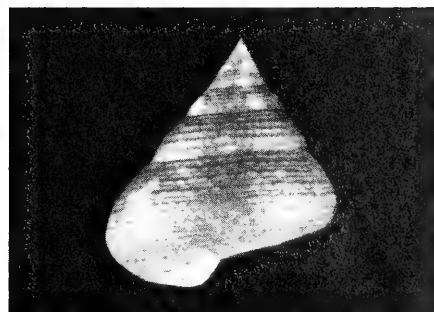
*Calliostoma orion* Dall, 1889 - 1080' Florida Straits. 10mm.



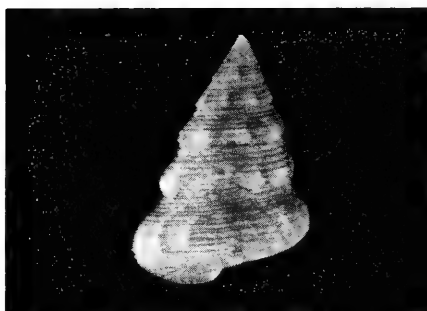
*Calliostoma jeanneae* Clench & Turner, 1960 - 840' Florida Straits. 7mm.



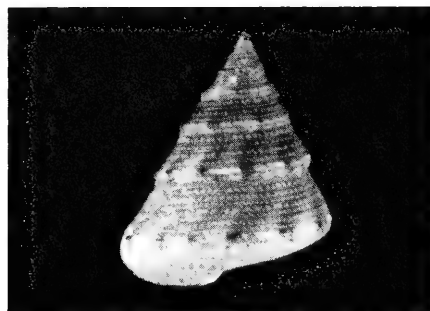
*Calliostoma fascinans* Schwenkel & McGinty, 1942 - 800' Naples, Florida. 5mm.



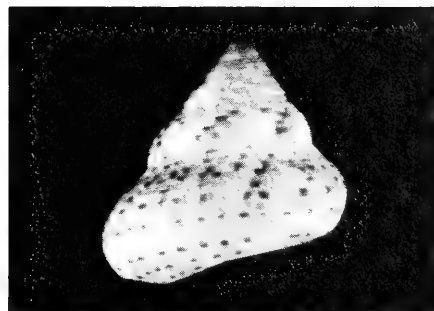
*Calliostoma sarcodum* Dall, 1927 - 30' Utila, Honduras. 9mm.



*Calliostoma roseolum* Dall, 1880 - 170' Key West, Florida. 12mm.



*Calliostoma pulchrum* (C. B. Adams, 1850) - 80' Key West, Florida. 13mm.



*Calliostoma depictum* Dall, 1927 - 20' Salvador, Brazil. 10mm. (This is not *C. adpersum*. See Rios.)

Dall, W.H., 1881. Report on the Mollusca, Part II. Gastropoda and Scaphopoda. Reports on the results of dredging in the Gulf of Mexico, (1877-78), and in the Caribbean Sea, 1879-1880, by the United States Coast Survey steamer BLAKE. *Bulletins of the Museum of Comparative Zoology of Harvard* 18:1-492.

Rios, E.C., 1985. *Seashells of Brazil*. Second Edition. Museu Oceanografico do Rio Grande, Rio Grande. Brazil.

## SHELLS IN PRINT

by Richard L. Goldberg

Those fortunate enough to have read Steinbeck and Ricketts' 1941 "Log Book from the Sea of Cortez," or actually to have explored the Sea of Cortez, know of its great beauty and diversity. The recently published, soft bound, all color field guide, **SEA OF CORTEZ MARINE INVERTEBRATES — A GUIDE FOR THE PACIFIC COAST, MEXICO TO ECUADOR** by Alex Kerstitch is a printed "celebration" of this amazing variety of color found in the over 1000 kilometer-long gulf.

The author defines the **SEA OF CORTEZ MARINE INVERTEBRATES** as both a complement and supplement to the definitive tome on Sea of Cortez invertebrates, **Common Intertidal Invertebrates of the Gulf of California**, by Richard C. Brusca, 1980, as well as his own co-authored **Reef Fishes of the Sea of Cortez** (Thomson, Findley and Kerstitch, 1979). The informative foreword to the current book is, in fact, by Brusca, Chairman of the San Diego Natural History Museum's Department of Marine Invertebrates. Kerstitch is Research Associate in Marine Sciences at the University of Arizona, and a high school marine biology teacher, well known for his articles, artwork and photographs in magazines and books world wide. He is well qualified to have compiled this field guide, in collaboration with other well known researchers: Hans Bertsch (opisthobranchs and cnidarians), Ron H. McPeak (cnidarians), and Dr. L. Yvonne Maluf (echinoderms), among others. Their joint efforts have produced a guide that is both useful and a pleasure to use.

Close to 300 3" x 3" vivid photographs illustrate nine invertebrate phyla: Porifera (Sponges), Cnidaria (Hydroids, Anemones, Corals, Gorgonians), Platyhelminthes (Flatworms), Nemertea (Ribbon Worms), Annelida (Segmented Worms), Sipuncula (Peanut Worms), Mollusca, Arthropoda (Barnacles, Shrimps, Lobsters, Crabs), and Echinodermata (Sea Stars, Brittle Stars, Cucumbers, Urchins). Many of the photographs show the organism in its natural habitat, adding interest and importance to the book. The accompanying text captions include the scientific and common name (though author and date for the former has been omitted, and the latter seems to have been selected arbitrarily), a short description, size, habitat, distribution and remarks, including whether the species is venomous.

Browsing through this book, one is immediately aware of the wealth of information contained within its 112 pages. The introduction to the phyla includes a pictorial key, and a very useful glossary will help beginners get through some of the terminology used in the text. The guide rounds out with a short but well selected bibliographic reference, and an index to scientific and common names. The majority of the book, though, is devoted to the extraordinary color photographs (three per page). Each photograph seems to be better than the next.

With approximately 10,000 species of marine invertebrates found in the Sea of Cortez, it must have been a formidable task for Kerstitch to select a relatively small group to be included in such a guide. Among the 109 mollusks represented are nudibranchs, cones, murex, conchs, olives and numerous other groups. The photographs are clear and sharp.

I would recommend this book to any marine enthusiast stepping foot in the Sea of Cortez, or to anyone with an appreciation for the beauty and color of its invertebrate fauna. **SEA OF CORTEZ MARINE INVERTEBRATES** is published at \$21.50, plus postage, by Sea Challengers, 4 Somerset Rise, Monterey, CA 93940.

## Hungarian Writer Wants Shells

A young biologist in Hungary, already an author of an introductory book on shells, is very desirous of receiving spare specimen Florida shells. He can reciprocate with Hungarian land and freshwater mollusks and his book: Mr. Szabolcs Tyahun, Balzac U. 9/II/Apt.5, H1136 Budapest, Hungary.

## CONTEMPORARY CONCHOLOGY

by Walter Sage

We have received information on three new books which are scheduled to be available in the near future. Some data on each of them is offered here:

**Cowries and Their Relatives from Southern Africa** by W. Liltved, \$65.00. "A superb book with a format similar to **Cowries of the World**. Extensive coverage of all South African Cypræidae, Ovulidae & Triviidae with magnificent color photos illustrating full range of variation within species. Photos of living animals, distribution maps and detailed descriptions and discussions make this an important addition to any shell library. Excellent coverage of systematics and morphology. Hardbound, 204 pp. Available October, 1989."

**"North American Freshwater Snails** by J.B. Burch covers the nearly 500 species of North American (north of Mexico) freshwater snails, dealing with their classification, anatomy, identification, distribution, etc." This is a reprinting, under one cover, of four earlier works on this subject, with some additional materials, by Dr. Burch. This book promises to be the definitive work on these mollusks and an important reference tool.



**Compendium of Land Shells** by Dr. R. Tucker Abbott. An authoritative guide to over 2,000 terrestrial shells of the world in color. "The Compendium of Landshells is the most complete, full-color identification book on the terrestrial, air-breathing shells of the world published in this century. It is a must for every serious student of mollusks and all amateur naturalists. Conservationists, ecologists, foresters and agriculturalists will welcome this

beautiful and sumptuous guide to the largest and most colorful pulmonate land snails. Over 2,000 species, representing eighty families, are illustrated in color, each with information on size, habitat, geographical distribution, popular and scientific name, date of publication and best known synonyms." Complete with bibliographies and indices, this 8½" x 11" 242-page companion to **Compendium of Seashells** will be available in late 1989 or early 1990 for \$56.00. Another must for the involved sheller!

## Shells Caught in Strange Predicaments: Things Go Better With Coke?

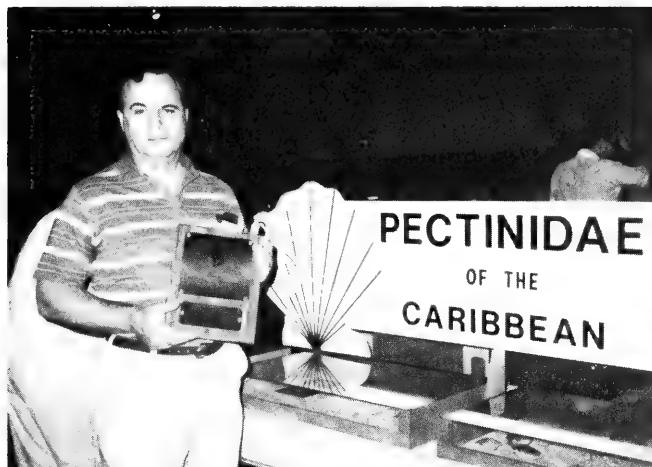
by Charles Glass and Robert Foster

Many people actually have to wonder how that clam got in the bottle! There's only one way: it grew there! John Bleck, fellow Santa Barbarian, SCUBA diver and shell collector, found this inhabited Coke bottle some years ago, and considering that we are cocaholics, kindly gave it to us. It is, frankly, one of our favorite shells in our collection! One does have to wonder how a clam could get sufficient nutrient in such an isolated environment to grow as large as it has, virtually filling the space within the bottle!





COA TROPHY WINNERS



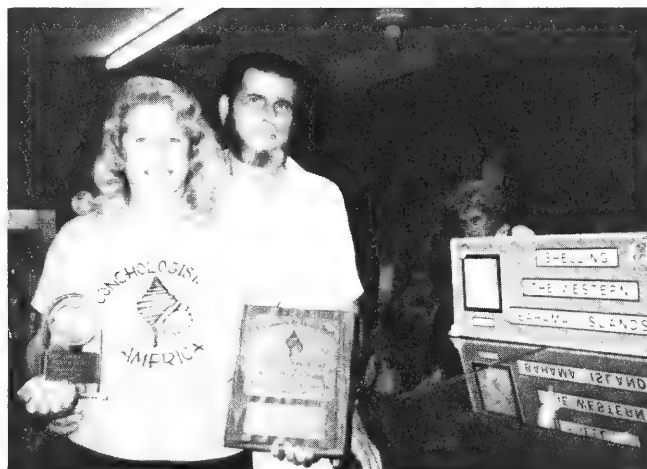
Ed Sarkin with his Sarasota Shell Show exhibit, "Pectinidae of the Caribbean," and his COA Trophy.



Barbara Barfield displays her COA Trophy at the Jacksonville Shell Show, in front of her winning exhibit, "A Comparative Study - Caribbean and Panamic Marine Bivalves, Fossil and Recent."



Doug and Louise Compton win the COA Trophy for their exhibit, "The Family Conidae" at the Georgia Shell Show.



Two trophies at the Treasure Coast Shell Show in Stuart, Florida went to Pat and Dick Bingham's exhibit, "Shelling the Western Bahama Islands," the COA Trophy and the Best Caribbean/Florida Trophy.



Lucille and Dave Green with their COA Trophy at the 1989 Marco Island Shell Show. Their exhibit was entitled "Conchology in the Caribbean."



Carol Bodine receives her COA Trophy from Donald Dan at the Indianapolis Midwest Regional Shell Show, August, 1988. Carol's winning entry was titled, "Midwestern Mollusks."



## BOOK REVIEW

*Seashells of Southern Arabia* by Donald and Eloise Bosch. 1989. 95pp., many color photos. \$18.00 plus postage, available from the authors, 93 Ridgeport Road, River Hills, Lake Wylie, Clover, SC 29710 USA.

The authors are well-known conchologists who lived and worked in Oman for many years, discovered nine species new to science, and published an excellent book, *Seashells of Oman*, in 1982. This new book promises to live up to its billing as "an identification guide to the most commonly-found shells in Southern Arabia." Included are 182 gastropods, 1 scaphopod, 68 bivalves, and 2 cephalopods, for which are given genus and species names with author and date, adult size range and locality, a paragraph of description, and a photograph of generally excellent quality. The authors have intended to provide a "relatively inexpensive reference manual to assist collectors living in" Southern Arabia.

In addition to the basic text and photos, the authors have included a short bibliography, an introductory section which discusses the classification of mollusks, two pages on "cleaning and travelling," and an index to the illustrated species. Two additional features set this book apart from the ordinary identification guide — 14 pages entitled "Shoreline Safety," which give a wealth of data on the potentially dangerous animals, including sharks, urchins, and cone shells, which can be encountered by the collector — and the fact that this section, the index, some of the text, and the scientific name, are given in Arabic — certainly an important feature for many local collectors.

It is important to call the reader's attention to two factors — some name changes from the authors' 1982 book, and the placement of the photos opposite the text rather than above or below it. This last practice could cause the reader some consternation at first, but will readily be adjusted to. This work is a worthy effort and a fine addition to the conchological library.

— Walter Sage

## DR. BARRY WILSON, FAIR DINKUM BANQUET SPEAKER

by Jean M. Cate

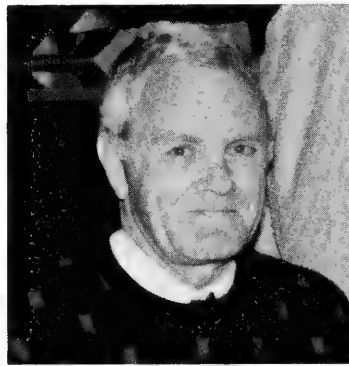


Photo by Dave Mulliner

COA-San Diego was honored to hear Dr. Barry Wilson as banquet speaker. His topic, *A History of Australian Shell Collecting*, led easily into talk of shell collecting as a hobby. The name of Barry Wilson has for years been synonymous with Western Australian shells, with good reason. Born in the sea-coast town of Busselton, Western Australia on Geographie Bay, a few degrees north of the Tropic of Capricorn,

where his mother had a tea room, Barry spent nearly all his boyhood on the beach and in the water, learning the local sea life. He left home in his late teens, earning his living as a carpenter in the wilds of northern Western Australia at Roebuck, near Broome, north of the desolate 80-Mile Beach in aboriginal country — "the dark old days," as he recalls them. Work there was casual, and when the spring tides ran, Barry would go off shelling. His next employment was as deck hand on a tourist ship in Queensland on the east coast — again, never but a short reach from shells and an environment he loved.

Returning to Western Australia to attend college at the University of Western Australia, he financed most of his undergraduate education plucking *Cypraea friendii* shells and selling them to tourists. He obtained his Ph.D. in marine zoology with a thesis titled, *Reproductive Physiology and Ecology of Marine and Estuarine Mytilids*, more popularly known as "The Sex Life of Mussels". Along the way he picked up a Fulbright scholarship to Harvard.

Wilson's professional life started as Curator of Mollusks at the Western Australia Museum at Perth. Promoted to Head of the Division of Natural Sciences there, he remained at Perth about ten years. He next took a giant leap forward to a six-year term as Director of the National Museum of Victoria in Melbourne.

For the past four years, as Director of Nature Conservation for Western Australia, he's administered all parks and nature reserves (including underwater reserves) in the state, adding new ones as he can. The underwater reserves are of special interest to him; he travels the world attending conferences on these and other topics related to parks of all kinds. For example, a parallel situation now exists between our problem regulating the fishing rights of our Alaskan Indians and that of the Australians with their aborigines; one of his stops on this trip was to take part in the current administrative conference on that very point.

Barry participated in shelling expeditions with the late Mariel King of Honolulu, to northern Western Australia, to the Philippines, to Pitcairn Island and the Marquesas, and to Indonesia. He has also taken part in American, Australian and Russian oceanographic expeditions. He has also co-authored two books, *Australian Shells* and *Field Guide to Australian Shells*, and is at work on a new one for Christmas, 1990, *Australian Shelled Gastropods*, with drawings by his daughter Carina.

Barry's own shell interests center in the cypraeid group, *Zoila* and in the family Mytilidae. A good friend to the shell collector, he cautions us to beware of upsetting Nature's balance in our collecting.

I am extremely proud of this young man whom I was privileged to meet and come to know quite well when Crawford and I visited Perth in 1966. I have many happy memories of those days working with Barry in the miter collection of the Western Australia Museum. He has already more than fulfilled his early promise, and still has many years ahead to outshine even his own fine work. We are indeed fortunate to have had the privilege of hearing Barry Wilson, a fine malacologist and "fair dinkum banquet speaker."



Actual print is 16" x 20"  
Picture measures 11" x 14"

One of the most common questions asked of a shell collector is — "Are those shells painted?" It was that question that gave Ed Blackwell the idea for this print. The shells in the print were chosen by the Indianapolis Shell Club to depict the most common classes.

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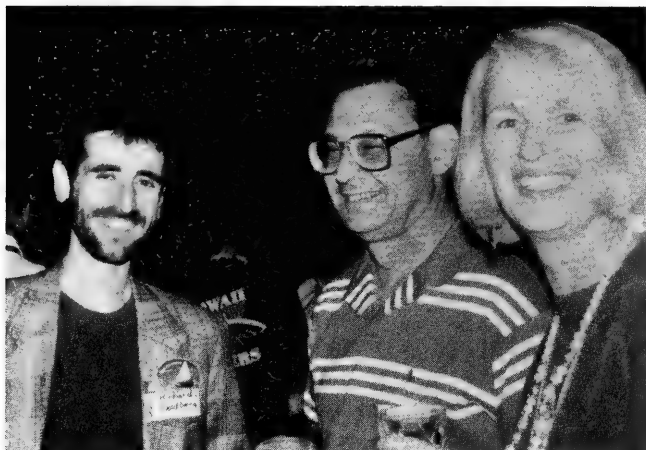
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Indianapolis Shell Club, Jack Gilbody, 620 Hillcrest Ct., Kokomo, IN 46901



Rich Goldberg, new COA Publications Chairman, with Jules and Carole Hertz, Welcome Party Chairmen. (Carole is editor of the San Diego FESTIVUS.)



photos by Dave Mulliner

San Diego Shell Club President Larry Buck tells Don Shasky how to find the best shells.

## "AMERICA'S FINEST CITY" HOSTED AMERICA'S FINEST SHELLERS

by Jean M. Cate

From Monday through Friday, June 19-June 23, San Diego was host to about 200 registered COA conventioners: both the **San Diego Shell Club** members and the City of San Diego did us proud. Though I've lived in San Diego's North County for fourteen years, it took a COA meeting for me to sample some of our tourist attractions; thus it was a double pleasure to meet both the COA and the frivolous side of San Diego for the first time.

Morning of the first day found the foyer outside our meeting hall crammed with registrants hugging and greeting friends; shell clubbers from everywhere were trading and selling their club's indigenous emblems and T-shirts. I had never seen so many club pins: my first thought was, "What hath Cate wrought?" [After seeing Australia's attractive club "badges" in 1966, Crawford and I imported the idea for the first American pins for the Sanibel-Captiva Shell Club. Why didn't we copyright the idea?]

After lunch the meeting opened with warm welcomes from **Larry Buck**, San Diego Shell Club's president, and COA President **Alan Gettleman**. As first speaker, **Dr. Tucker Abbott** spoke on "The History of American Books on Conchology," reminding me and others who were neophyte shellers in the early 50's that we had little to study then besides the Walter Webb catalogs, Julia Ellen Rogers' **The Shell Book** and a few other very basic texts. About all we learned from them were the names and provenance of a lot of shells, and what they looked like — not a bad beginning, come to think of it! **Ruth Abramson** then talked of "Shell Collecting on Coins and Stamps" — a fascinating topic.

A wine and hors d'oeuvres party brought everyone together for that first evening. Far from home were **Aurora Richards** (Papua New Guinea), **Dr. Barry Wilson** (Western Australia), **Prof. Eliézer C. Rios** (Brazil), **Marcus and José Coltro** (Brazil), **James Ernest** (Panama), **Charles Fernie** (Bahamas), **Gustav and Crispina Stalzer** (Austria), and **Shinjiro Fujimoto, Yasuo Koyama, and Hiroshi Munkata** (Japan).

Tuesday's program began with **Prof. Eliézer Rios** of Brazil speaking on "Marine Mollusks of Brazilian Oceanic Islands," with beautiful slides of scenery and shells from a part of the world little known to us. **Dr. Donald Shasky**, probably the busiest collector from the west coast, followed with "Marine Mollusks of Costa Rica." **Tony d'Attilio** presented one of his many muricid specialties, a "Discussion on *Typhis*," with slides of specimens and of his own drawings of these complicated species.

Following Tuesday morning's programs, the first **Silent Auction** session began, with further sessions sandwiched between speakers throughout the meeting — a clever leg-stretching stratagem. After lunch **Richard Goldberg** presented "Focus on Conchology," the first professionally produced video film to deal with conchology. We shall watch eagerly for more to appear soon on commercial television. **Dr. Hugh Bradner** of La Jolla's Scripps Institute of Oceanography discussed "What You Can Learn From *Cypraea Radulae*," which turned out to be a great deal. Hawaii's **Olive Schoenberg** presented "What a Crazy Place to Live," showing some well-disguised habitats of parasitic and commensal animals. The afternoon session closed with **Don Pisor**'s own video production titled "Madagascar Odyssey," showing his recent trip there. From 5 to 7 p.m. the shells to be sold at the evening auction were on view. I'm told the sale was a rousing success which brought in over \$5000.00 for the benefit of COA and our Grants Program.

Wednesday morning brought three outstanding programs: **Ron McPeak** demonstrated the "Ecology of California's Kelp Forest," a different viewpoint on the nasty brown stuff that menaces divers and boaters, and buries our beaches for a time every summer. Ron showed the multitude of marine life living there, and made us feel more kindly toward kelp; it has a totally different, highly respect-

### WE ARE SO GRATEFUL TO...

Convention Chairman Don Pisor and his wife Jeanne  
Registration Chairman Maria Goldstein and husband Raymond  
Field Trip and Auction Chairman Kim Hutsell and family  
Finance Chairman Wally Robertson  
San Diego Shell Club President Larry Buck  
Banquet and Tours Chairman Ellen Jackson and John Jackson  
Welcome Party Chairmen Carole & Jules Hertz  
Program Chairman Wayne Reed  
Publicity Chairmen Herb & Mella Webster  
Mary Regula, Registration  
Dave and Peg Mulliner, Photos and Registration

AND TO ALL THE OTHER VOLUNTEERS FROM THE  
SAN DIEGO SHELL CLUB. WITHOUT YOU, COA 1989  
WOULDN'T HAVE BEEN POSSIBLE!



1988-89 President  
Alan Gettleman



1989-90 President  
Peggy Williams

able aspect from below. Bob Schoening followed with "Biological and Medical Aspects of Dangerous Marine Life," an important and vivid reminder of the dangers of certain sea creatures, with helpful suggestions for treating their bites and stings, or avoiding them altogether. Dr. David Leighton spoke on the fascinating subject of "Abalone Culture," a mariculture project being developed for abalone, as well as other edible forms of sea life, to feed our future overpopulated world.

I recall early experiments in the 60's which demonstrated that isolating a few abalones and feeding them nothing but yams eventually resulted in a broad orange stripe on the outer edge of the shell. At the time there seemed no known use for manipulating the appearance of any shell. Things are different now.

Dr. Leighton showed us how modern mariculturists keep the baby abalones isolated in tanks from the veliger stage through youth. A unique coded shell pattern for each "farmer" is worked out through the abalones' carefully controlled diet. At four years, the half-grown animals are released into the ocean to complete their growth to commercial size at about ten years. By now, the simple yam stripe has been adapted so that diet-produced stripes of different colors, widths and arrangements permanently "brand" the maturing animals, giving the growers a means of apprehending future abalone rustlers, and without doubt founding a new branch of conchology for collectors of a different stripe. It also emphasizes the dictum that there's no such thing as useless knowledge, especially in science; sooner or later SOMETHING, good or bad, will come of it.

After lunch, those who toured "Behind the Scenes" at Sea World came back happy and smiling, so it was surely a success. I missed the trip but had already enjoyed a private viewing.



Don Pisor, Convention Chairman with Maria Goldstein, Registrar, and Mary Regula (lower right), tireless San Diego Shell Club volunteer.



Some familiar faces: 1987-88 President Don Young, Peggy Williams, New Executive Board Member Bev Deynzer, Treasurer Walter Sage, Outgoing Executive Board Member June Huie, Secretary Dave Green, and new Historian Lucy Clampitt.

That evening we had a memorable dinner cruise around San Diego's magnificent Mission Bay aboard the INVADER, a 136-foot racing schooner that won the Transpac Cup in 1926 and held it until 1974, the longest-held record for that race. (Dennis Conner, eat your heart out!) It's the largest passenger schooner in America, and was used in the movie, "Robinson Crusoe." We enjoyed a delicious dinner which the crew somehow managed to serve piping hot despite a chill breeze on the bay. The San Diego shoreline is superb by day and spectacular by night. It was special, too, to have the whole ship to ourselves. We had a fine trip; the bay was as smooth as a bathtub.

## A WARM THANK YOU

For their generous donations, which helped make COA 1989-San Diego such a great convention, we wish to thank the following:

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Peggy Williams



Several of our guests from overseas: **Top:** Aurora Richards from Papua New Guinea and Prof. E. C. Rios from Brazil. **Bottom:** Shinjiro Fujimoto, Yasuo Koyama and Hiroshi Muneakata from Japan.

Thursday brought Gary Rosenberg's presentation, "Close-ups, or Where in the Shell Am I?" It featured macro-lens shots of shells at such close range that identification was next-to-impossible — a most unusual presentation, and fun. Dave Mulliner showed some of his spectacular photos of Baja California collecting areas. His starlit campfire masterpiece will forever haunt all who saw it.

From 3 p.m. until noon the next day the **Dealers' Bourse** was open — another first for me, and what a sight it was! If I still maintained

a collection, I'd be in deep trouble today.

On Friday afternoon there were two tours: a behind-the-scenes view of the **Scripps Aquarium in La Jolla**, and **Open House at the La Jolla shell shops**. It wouldn't surprise me if some of the ladies who went along took note of our other super shopping up there too.

The annual happy hour and banquet took place that evening, and once again the food was excellent. Our speaker, **Dr. Barry Wilson** of Western Australia, in his native language, "Strine," talked about his part of the world and about malacology in general. It was an exceptional presentation, at once funny with his finely-tuned sense of humor, beautiful with his color slides of Western Australia collecting areas, and deeply thoughtful about the future of malacology — encouraging us to enjoy our hobby, but with great care so that it will remain for future generations to enjoy. Dr. Wilson's address put a meaningful end to a meeting which must have been at least as good as the best of the previous meetings. I regret having missed them.

## DELAWARE AWARDS GRANTS

The Department of Malacology of the Delaware Museum of Natural History is pleased to announce the names of the 1989 recipients of its student awards:

The 1989 DMNH Trustees Award (\$500) will be given to Ms. Paula M. Mikkelsen, Ph.D., student at the Florida Institute of Technology, to aid in her research on the systematics of the Cephalaspidea.

The 1989 DMNH Jean Austin du Pont Memorial Award (\$500) is going to assist Mr. John B. Wise, Ph.D., student at George Washington University, in his studies on Pyramidellidae.



photo by Jo Fetzer, exhibits artist

**South Carolina Shell Club:** Front row from left: Raymond Pease, Melinda Bannon, Delores Pease, Margie Morgan, Shirley Connor. Back row from left: Sammy Peek, Mike Conner, Bob Padburg, Peter Coleman (Exhibits Coordinator), Walter Morgan.

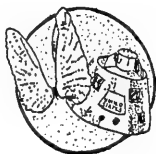
## MIRACLES OF DESIGN

by Raymond Pease

From February through August, the South Carolina Shell Club collaborated with the Charleston Museum to present "Miracles of Design," a shell-lover's dream exhibit, combining the museum shell collection with private collections belonging to shell club members.

The museum's shells include the 19th century collection of Dr. Edmund Ravenel and that of former Associate Museum Curator William Mazyck. The exhibit featured biographical information on both men. It also included more than 200 species of South Carolina seashells, from the ordinary to the exquisite, as well as a vast array of mollusks from around the world, and elegant, exotic and decorative items made of shells.

## COA 1990 - DESTINATION MELBOURNE



The clock is running, the countdown is now...12...11...10 months. The destination: Melbourne, Florida, July 9-13, 1990. Plans are progressing very well. Astronaut Trail Shell Club's only problem is, which special activities to include and which to omit. I suggest you make your plans to come to Central Florida a week early or stay a week after...there is so much to see in this area. Don't make the mistake I made this year in attending only the convention. It was great but I am still kicking myself for not taking the opportunity to see the sights around San Diego.

Attention Club Program Chairmen: should you need a program filler or want to preview the 1990 convention site, ATSC will be glad to send our 15 minute slide program with tape, the one presented at San Diego, for your club's use. We ask only that you return it as soon as possible after showing. For information, contact me, 147 Hedgegrove Ave. Satellite Beach, Florida 32937-2113. Phone 1-407-777-2116.

— John Baker, 1990 COA Convention Chairman





## BOARDTALK.....

From **COA Vice President HANK FOGLINO**: I would like to thank the membership of COA for electing me to the office of vice president, and to say that I am looking forward to a very productive year for our organization. As part of my duties, I will be interfacing with the representatives of the various COA member shell clubs. Some of the projects that we have in mind for this year are 1) forming a speakers' bureau whereby member clubs will have a listing of qualified individuals who are available to give presentations at club meetings 2) make available the means for clubs to have a COA booth at their shell shows where the functions and goals of COA can be publicized, and 3) submit news of COA activities to the member clubs in order that it may be included in their newsletters. In this way, non COA members may become aware of our functions and elect to join us. If any of you have any ideas of what we could or should be doing, please let me know. I assure you, no communication will go unanswered.

By the time you read this, I will have sent a letter to all club representatives, expressing in more detail what you have just read. If your club has not received my letter, please contact me so that I can add you to my mailing list. I would also like to communicate with non member clubs, so if you have any data on existing clubs who are not COA members, please send me the information. I'm hoping to hear from you real soon.

From **COA Treasurer WALTER SAGE**: The San Diego Convention was a resounding success. Don't miss Jean Cate's excellent account of the festivities. Special thanks to all of you who supported our auction and raffles — our Grant Program was the beneficiary of your generosity.

And a special thanks to Don Pisor and his crew for the post-convention field trip on Saturday, June 24th. Approximately 75 of us gathered for the trolley and bus trip from San Diego across the border to Tijuana and down to Rosarita, Mexico, where we spent a grand time collecting. A number of species were found, including epitoniums and *Haliotis cracherodi*."

Note the article on page 2 about increased COA membership rates for 1990. Thanks in advance for your prompt dues payment.

We have available a number of copies of the list of convention participants and I will be happy to mail a copy of this list to anyone sending me a stamped, self-addressed envelope. You'll want to count the Florida attendees!!

## 1989 COA GRANT AWARDS ANNOUNCED

The COA Grants Program has awarded a record total of \$4000.00 to eight qualified applicants for assistance with their molluscan research and educational projects. Chosen from a field of 22 applicants, the grant recipients were awarded sums ranging from \$300 to \$700.

The COA grant recipients and their projects are:

**Melbourne C. Carriker**, retired professor of the University of Delaware — history of oyster research and the biography of the late Paul Galtsoff, oyster expert.

**Carolyn H. Declerck**, Ph.D. candidate, University of Davis, California — thesis project on gill morphology of gastropod filter feeders.

**Jennifer L. Greenier**, Master's degree student from the Moss Landing Marine Lab, California — mariculture of juvenile red abalones.

**Jose H. Leal**, Ph.D. candidate at the University of Miami — zoogeography of Brazilian offshore island prosobranchs.

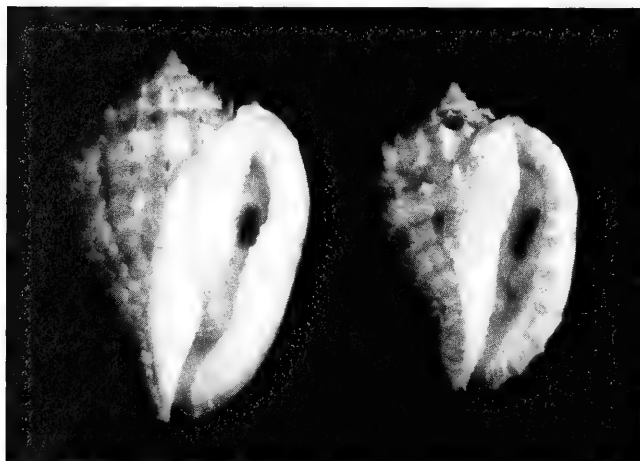
**Susan C. McBride**, Master's degree student at the Moss Marine Lab, California — diet studies in post-larval Red Abalones.

**Amlie H. Scheltema**, independent guest investigator at Woods Hole Oceanographic Institution, Massachusetts — descriptions of new species of Aplacophorans from deepsea thermal vents.

**Richard L. Squires**, salaried professor in the Department of Geological Sciences, California State University — Eocene marine mollusks in Baja California, Mexico.

**Richard L. Turner**, salaried professor in the Department of Biological Sciences, Florida Institute of Technology, Melbourne — the ultrastructure of the egg capsules of the Florida Apple Snail, *Pomacea paludosa*.

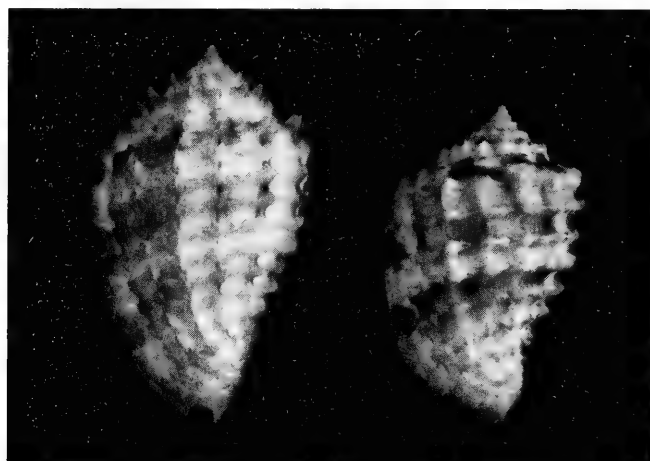
The deadline for 1990 grants is April 15, 1990. Interested applicants may submit an outline of the proposed project, amounts and purposes for which the award will be used, a short biography, educational status or pertinent job experience, and a letter of recommendation. The grants, up to \$1,500 per applicant, are awarded only to citizens or permanent resident of the Americas, or to foreign students attending graduate schools in the United States, and are for research or educational projects, but not for travel to meetings, overhead, or permanent equipment, or for page charges. Submit to Dr. R. Tucker Abbott, Chairman of the Grants Committee, Conchologists of America, P.O. Box 2255, Melbourne, FL 32902-2255.



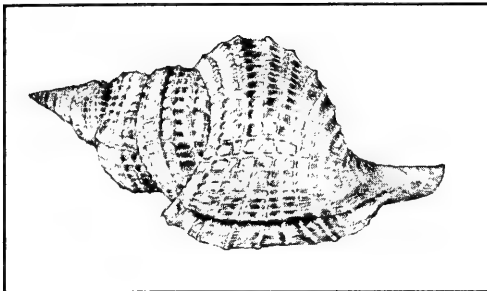
### Yet another addendum to A Pictorial Review of the Genus *Morum*

by Charles Glass and Robert Foster

Since we published our "Pictorial Review of the Genus *Morum*" (COA Bulletin, Vol. 12:4, 67-69, 1986) and the addendum (Vol. 15:2, 10, 1987), we have been fortunate to obtain a couple of newer,



rarer species with which some readers may not yet be familiar. In the above figures the 44mm shell on the left in each is *Morum ninomiyai* Emerson, 1986, trawled off southwest Thailand (AbS 88-025) and the smaller 37mm shell on the right, *Morum lindae* Petuch, 1987, closely related to *Morum dennisoni* (Reeve, 1842), trawled in 40-60 fathoms southwest of Islas Las Monjes, Gulf of Venezuela in 1986 (AbS 88-021).



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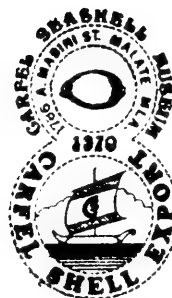
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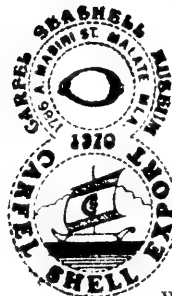


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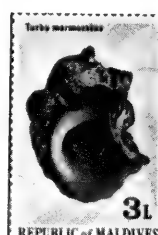
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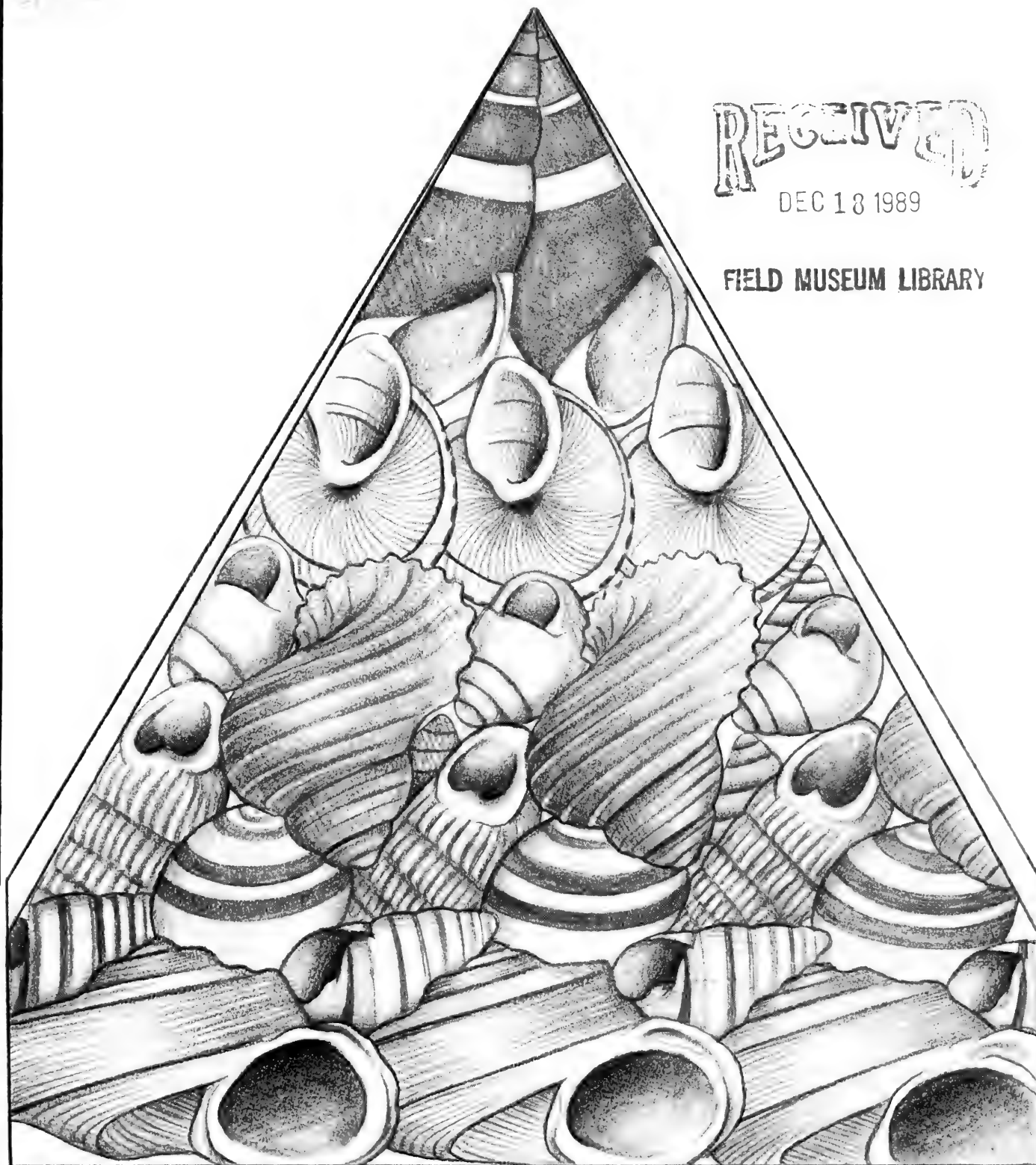
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QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 17, NO. 4

DECEMBER 1989



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and the world. An annual convention is held each year in a different part of the country.

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#### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January. INDIVIDUAL (per year) \$12.50; FAMILY & CLUB (receiving one AMERICAN CONCHOLOGIST) \$15.00; WESTERN HEMISPHERE (Air Mail Postage) \$20.00; OVERSEAS (Air Mail Postage) \$25.00. New members send check or money order to the MEMBERSHIP CHAIRPERSON Bobbie Houchin, 2644 Kings Highway, Louisville, KY 40205. Renewals are sent to the TREASURER. Back issues are available from Mrs. Houchin @ \$2.50.

COVER: A study in design and texture contrasts by Mathilde Duffy. Among the land shells used in this pencil drawing are *Achatina fulgens*, *Polymita picta*, *Obba rota* and *Tropidophora cuvieriana*.

## THE ASTRONAUT TRAIL IN 1990

by John Baker, 1990 Convention Co-Chairman

**ATTENTION ALL!** The countdown is still running...9...8...7 months! All systems are GO! Things are looking more exciting every day. Now is the time to begin your own countdown for a super COA Convention at Melbourne, Florida, launch date July 9-13, 1990.

It's the perfect locale for your vacation. The area is rich in attractions, both natural and manmade. The Orlando-Kissimmee area just an hour west of us, is internationally known for Disney World, Epcot Center, Disney-MGM Studios, Sea World, Wet and Wild Water Park, as well as nearby Cypress Gardens, and Boardwalk and Baseball, and in May 1990 the Universal Studio Tours will open there. To the north is Historic St. Augustine, oldest city in the United States, Marineland of Florida, and world famous Daytona Beach, a must if you haven't seen it! South of us is the entire Florida Gold Coast,

Lake Okeechobee and the Everglades and the thrilling Florida Keys.

But some of the greatest sights, both technological and natural, are right here in our own Brevard County! The northern end, Canaveral National Seashore offers 57,000 acres of wetlands and 25 miles of beaches, including the beautiful Playalinda. Over 250 species of birds are found in this park. And shells...well! A little further south is the Merritt Island Wildlife Refuge, boasting over 300 kinds of birds, not to mention drives and trails, animals and lush plant life. It shelters more endangered species than any other U.S. refuge!

Then comes Kennedy Space Center's Spaceport. (We have some special plans concerning that! Details to come.) In Central Brevard we find Port Canaveral, Florida's third largest port, and growing. It offers many daily cruises, fine seafood restaurants, and ships of all descriptions: fishing and shrimping boats, cruise ships, tankers, naval, coast guard, and NASA tracking and recovery vessels. Jetty Park is the favorite place for viewing missile launches and the new commercial launches soon to blast off from Cape Kennedy Air Force Station. We see from the schedule that Space Shuttle "Discovery" should be taking off the week of July 9, so we should be able to get an excellent view of that breathtaking event from the beach in front of our hotel.

And speaking of shells, Port Canaveral used to be the main base for scallop processing plants and "scallop dumping." After a few years' hiatus, we are hoping there'll soon be a return to the "Good ole days" of "Dump Collecting."

At the south end of Brevard County is the Sebastian Inlet State Park, our very best collecting spot, but a small area and quite fragile, and requiring restrained collecting. Camping, fishing and surfing are excellent, and the McLarty Visitors Center just south of the Inlet features a display of Spanish treasure.

Historic St. Johns River, the only northward-flowing U.S. river, forms Brevard County's western boundary. A ride on this river offers beautiful plant life, birds, fish, alligators and fresh water mollusks. And splitting the county north and south are the Indian and Banana Rivers, actually salt water lagoons, abounding with fish, shrimp, oysters and clams, dolphins and manatees. The Indian River is the Intercoastal Waterway, over a mile wide as it flows through our area, and it used to be an excellent place for Angel Wings, Astronaut Trail Shell Club's emblem.

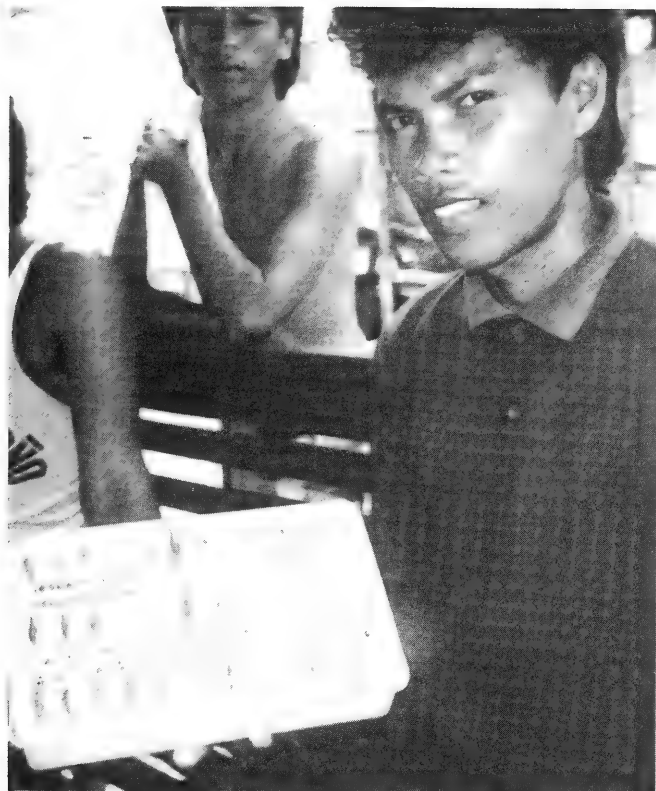
Our hotel, Holiday Inn Melbourne Oceanfront, right on the beach, and adjacent to Paradise Beach County Park, is a complete resort hotel, with many nearby dining places to suit any taste and pocket-book. And Convention time will coincide with turtle nesting and hatching time, so the hotel will dim lights on the ocean side at night; we hope you'll be able to see one or both of these events.

As if all this isn't enough, plan to extend your vacation slightly, and you'll have the opportunity to take in two great Florida Shell Shows! Both the Jacksonville and Broward Shell Shows will be held shortly before the Convention. Jacksonville is scheduled for June 22-24, while Broward will be July 5-7. What an opportunity!

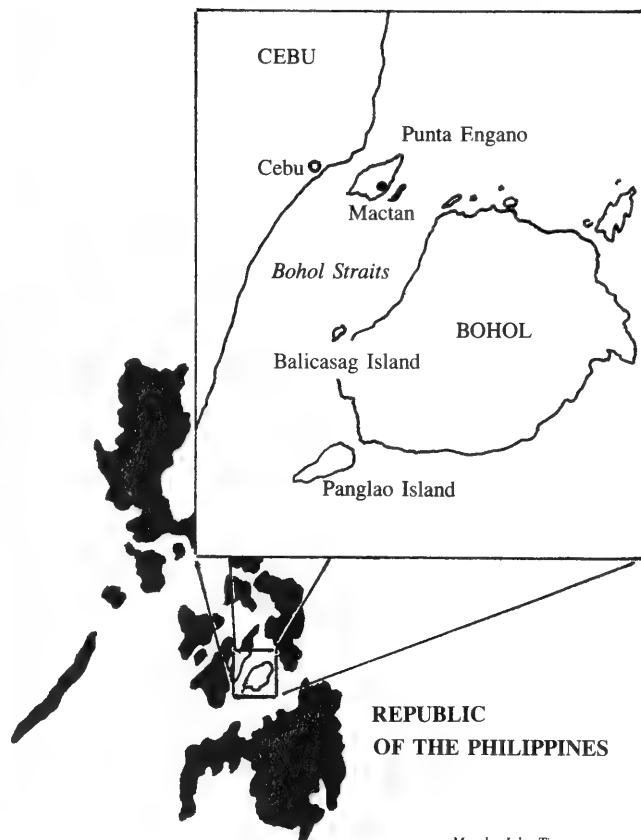
Watch for your registration forms and complete details on all the fascinating Convention plans in the March 1990 issue of **American Conchologist**! That's right! All this excitement, and we haven't even begun to tell you about the programs, the field trips, the COA Auction, the Banquet, the Bourse or that wonderful convention magic! So make your plans now for the vacation of your life!

## NEW COA PUBLICATION IN THE WORKS

The COA Publications Committee will be initiating a series of special publications as a supplement to **American Conchologist**. These supplemental publications will consist of lengthy articles and papers dealing with useful topics of interest to conchologists, to be available at cost. The first publication is an exciting one, currently being edited, and will be announced in the next issue of **American Conchologist**. Look for it in March.



Nelson Bergamento, a Punta Engaño fisherman and one of their newer shell dealers, has an obviously artistic eye, as evidenced by his beautifully displayed collection of colorful ovulids from northern Bohol.



Map by John Timmerman

## A SHELL DEALER IN THE PHILIPPINES

by Charles Glass

One of the few things to which I don't look forward on a trip to the Philippines is the arrival at the Ninoy Aquino International Airport. The moment you exit customs you are besieged by boys insistently intent upon carrying your suitcases, and you may find that to carry three pieces it is taking a dozen of them, all of whom expect to be tipped. They lead you to a car, perhaps a taxi, perhaps with a meter that works at some erratic pace. If you have the presence of mind or experience to ask the fare, the reply may be anything up to 400 Pisos (\$20.00) for a ride that should be about 30 Pisos (\$1.50). Welcome to the Philippines! . . . and the beginning of a rather unique shell buying experience.

On the other side of the coin, one time I took the hotel's transportation, and when I saw the charges they made for Airport transportation, I decided in the future I'd rather be robbed by a needy hack and a handful of young kids trying to scramble for a few needed pesos than by an international hotel syndicate.

Years ago on one of my first buying trips to the Philippines, a Filipino friend of mine accompanied me to one dealer's shop, and though not at all involved with shells, my Filipino friend was attracted to some of the commonest yet prettiest of shells. He'd point at a Tiger Cowry and ask the price, being informed that it was a few cents. He saw me buying cowries that looked similar, but perhaps less attractive, and being given prices of \$500.00 or \$1,000.00, or more. He asked the price of a Textile Cone and again the price was modest, and then he'd see me buying similar species with prices in the hundreds of dollars. He took me aside and most apologetically informed me that regretfully my friend the dealer was cheating me. I assured him that, no, I knew the values of the shells, and that what I was

\*Abbey Specimen Shells, P.O. Box 3010, Santa Barbara, CA 93130-3010

buying for a lot of money would sell for even more when I got home, enabling me to come to the Philippines on such buying trips. He was absolutely not to be convinced, and insisted that I had to learn some Tagalog, the national language, so that I could avoid being "taken" as a foreign tourist. Then and there, he gave me the phrases, "Pinakamura lang pero magandang klase!" (I want only your cheapest prices, but good quality!), "Wala bang tawad para sa akin?" (Is there no discount for me?) and other such interesting, but rather unnecessary, phrases.

But all this relates to another interesting aspect of shell buying in a third world country like the Philippines: the minimum wage is about \$3.00 a day in the provinces, but the average wage is probably closer to \$2.00 a day, and many make less than \$1.00 a day, though they work a full and hard eight hours. How does one explain, if indeed there is an explanation, why a shell is worth more than a person can expect to earn in several years? And what does that inequity do to the local economy? It means, for one thing, that a lot of fishermen forget about fish!

About twenty-five or thirty years ago a fisherman in Punta Engaño — a Spanish place name meaning "deception point," but more about that later — found a Glory of the Sea Cone in his deep water tangle net, and the gold rush began. The Republic of the Philippines has over 7,000 islands, which means a lot of habitats for marine mollusks; but so far, these past twenty-some years, virtually all the deepwater netting has been in the Bohol Straits off Punta Engaño and Panglao, Bohol, and in the Gulf of Davao. This means they have barely scratched the surface! And they have come to up with an impressive number of the great rarities of the shell world, along with an astonishing wealth of new taxa.





Vic "Inting" Dungog, son of Lydia Dungog of "Lydia's," an established commercial shell enterprise at Punta Engaño, is an up-and-coming dealer in his own right; left: Proso Dano, brother of Rudy and also an independent dealer.

Many visitors don't know what to expect when they arrive in the Philippines for the first time. They may know that the Philippine Islands were discovered by Magellan (on March 16, 1521), who, by the way, lost his life in a battle with the natives of Mactan Island, today the very center of shell activity; that the islands were named in honor of King Philip of Spain and were under Spanish domination for nearly 400 years; that America seized the Philippines from Spain near the turn of this century during the Spanish-American War; and that America was forced out of the Philippines by Japanese forces early in the Second World War, Gen. MacArthur departing with the promise, "I shall return"; that we did, indeed, return and that the Philippines were awarded independence on July 4, 1946...but, chances are, they don't even know what language is spoken there. They will be pleasantly surprised to learn that English is a strong second language and that most Filipinos can speak English quite fluently.

From most parts of the world you can order shells by phone or letter. Certainly you can do the same from the Philippines when you want the common shells always in good supply there. But when it comes to the rarities, it's the one place in the shell world where you absolutely have to be there the day a new shell is brought in, or miss out. Filipino shell dealers are firm believers in the axe about a bird in the hand, and there are dealers from all over the world — Japan, America, Europe, South Africa, Australia — virtually every day of the year. The newer element in the picture these days is the presence of the retail buyer. He will certainly out-bid the dealer, and once a higher price is paid for a shell in Mactan, the word immediately spreads and the price of every specimen of that species immediately goes up accordingly. Prices today for rare shells in the Philippines,



Some of the workers sorting through shells at Sea Gems, a large commercial enterprise at Mandaue City near Cebu.



Victor Dan, from Manila, visits Cebu weekly to be among the first to get the new arrivals of shells. He has introduced and had named for him an enormous number of new species from central and southern Philippines. Known also for his high standards and excellent quality, he has one of the best collections of Philippine shells in the world. He is shown here relaxing with Marty Beals, co-owner of Tideline, a large commercial shell and coral operation in California. Marty has one of the world's finest collections of cowries.

never great bargains, are up at least thirty to fifty percent and it's no doubt mostly because of collectors competing with commercial dealers to buy from suppliers who make little distinction between wholesale and retail. In fact, when a Philippine dealer offers you a "wholesale" price, he means: if you take the whole batch he'll give you a sale price.



Primitiva Hora here cheerfully tolerates the serenading of your author, pursuing his weird and esoteric hobby of singing ballads in Tagalog and Visayan. Primitiva, together with her husband Quirino, run one of the most successful shell dealerships in Bohol. Quirino has helped introduce many new species of *Bursa* from Bohol, one of which was named *Bursa quirihorai*.



**Mr. and Mrs. Fernando Dayrit at their home in Quezon City near Manila. Mr. Dayrit is a leading shell dealer in the Philippines and has been in the business many years before the relatively recent boom in central Philippines. He also has one of the largest collections of Philippine land shells in the world.**

Back to "deception point," where there's the question of "doctored" shells. Cones are among the most doctored, and the "Doctor of Mactan" is so good that his work can be very difficult to detect, whether it's a filled-in growth break or a bore hole, or even a complete new lip or spire! If you're paying a thousand dollars for a shell, or only ten, you want to be pretty sure it's not a damaged, nearly worthless specimen that's been made to look good. Most specimen shell shops in the Philippines are dimly lit with low wattage bulbs, so I always carry a hand lens and step out into the sunlight to examine potential purchases.

So what happens the day you, a shell dealer or collector, arrive in Cebu? Word gets around astonishingly fast, and the next day at 7 or 7:30 a.m., you're likely to get a call from the lobby that someone is there to show you some shells. When you get downstairs, it's more than likely a congregation of all the "gypsies" and dealers' agents from Punta Engaño, all with canvas bags stuffed with plastic boxes crammed with shells of various quality. There are some quite good bargains, occasionally some excellent ones, but mostly they bring what the dealers are not able to sell readily, or second class material, all of it with the distinct aroma of only partially cleaned shells, dripping with baby oil that covers a multitude of flaws, and sticky with maggots and fly specks. These entrepreneurs, trying to gain a foothold in the business, go around to the established specimen shell dealers to get whatever shells the dealers will spare, mostly on a consignment basis. Sometimes you can get a better bargain from them when, to sweeten a deal, they throw in miscellaneous specimens that make up for the over-priced shells, and sometimes they come down drastically and suddenly in price. But when you counter a \$150.00 asking price with an offer of \$70.00, and your \$70.00 is accepted without a moment's hesitation, you know that you bid way too high and you'd better check carefully for hidden or repaired flaws!

The Cebuano dealers have most foreign dealers characterized by how discriminating their tastes are. One American dealer is known for always preferring second class shells at bargain prices, and another is affectionately referred to as "the junk man," for that's what he buys as a matter of preference. Another American dealer has a reputation for good Philippine data, because he is over there often, buying "from the fishermen." When I mention his reputation to his main supplier in the Philippines, the man just laughs, stating, "No one's going to tell anyone the true localities, because they don't want others to know where they are getting the shells." Well, that's not always true. If I buy uncleaned shells on Balicasag Island, I know that they most likely came from the deep water fishing grounds around the

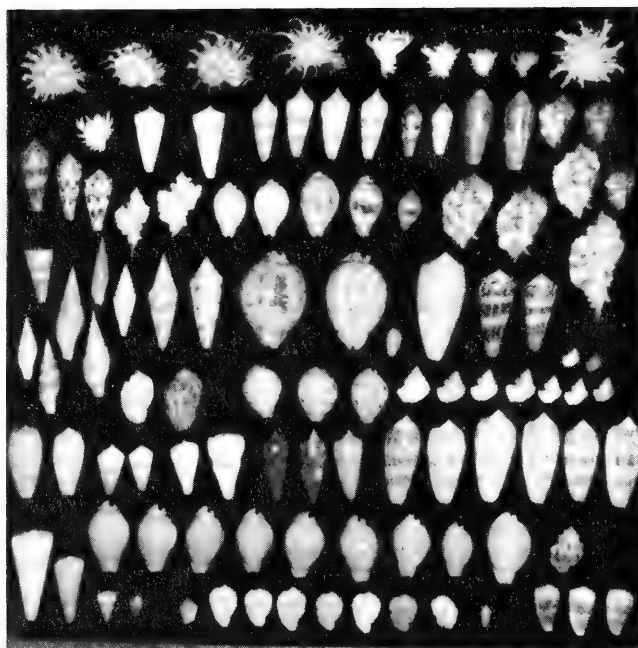


**Rudy Pagobo of Lapulapu City, Mactan, is one of the more successful dealers exclusively in specimen shells. He keeps his passion for cock-fighting in control, but is understandably proud of the trophies his cocks have won for him.**

island; however, if the shells are cleaned and polished, as many are, even on Balicasag Island, it is likely that the fishermen's wives, who are selling those shells, purchased them from a shell factory in Cebu to sell to divers and other tourists who come to that remote island. Indeed, these dealers have become old and dear friends to me, and I look forward to the teasing and the bargaining and the banter. They recognize me from a great distance as I approach the island in a large motorized outrigger *bangka* from Panglao, Bohol, and start calling out my name from the shore, so I have to try extra hard to find something I can buy from as many of them as possible, even if just for a few pesos.

You do also eventually learn that some species almost always come from one particular locality, as unlikely as that may seem. In some cases you can even tell the difference by looking at the shell. Most specimens of *Cypraea guttata* from Bohol are fairly different from the same species from Davao; *Conus gloriamaris* from Siquihor can usually be distinguished from the same species from Cebu by subtle color differences.

There is a marked difference and division between so-called specimen shells and commercial shells in the Philippines. Most dealers of "commercial shells," the commoner species sold at inexpensive prices in great quantities, often in excellent condition, offer as well a certain number of "specimen shells" or "deep water shells," the rarities from the tangle nets in deep waters that fetch the higher prices. Commercial shells are always available in quantity, but the availability of "specimen shells" depends on what dealers are there or have been there recently, what the weather has been, and how many nets are currently being used. There are regular rushes of stealing these nets, which are expensive enough to discourage the fishermen from putting out many more. Even though the price of a net would be covered many times over by the capture of some possible rarities, there are also many mornings when the nets yield nothing or have been lost to weather or thieves. When you enquire about shells, you will usually be told that the dealer has a "trusted man" or agent coming in from



One of the better hauls from a Philippine buying trip, including *Astraea girgyllus*, *Angaria sphaerula*, *vicdani*, *Murex loebbeckei*, *miyokoe*, *annandalei*, *Cypraea sakurai*, *langfordi*, *hirasei*, *valentia*, *leucodon*, *vicdani*, *porteri*, *guttata*, *Mitra hilli*, *pele*, *Harpa kajiyamai*, *Trigonostoma pellucida*, *Conus tribblei*, *neptunus*, *circumciscus*, *kuroharai*, *gloriakiensis*, *excelsus*, *cervus*, *thomae*, *dusaveli*, *bullatus*, *lenavati*, *muriculatus*, *colorovariegatus*, *capitanellus*, *kintoki*, *polongi marumai*, *moluccensis*, *stainforthi*, *Cantharus leuco-taeniatus*, *Morum kurzi*, *joelgreeni*, *exquisitum*, various *Latiaxis*, etc.

Davao or Bohol in a day or so, and you had better be there first when he arrives. All too often, the answer is, "Oh, not so plenty shells this time."

The last day I'm going to be in Visaya, or the central Philippines, I'll usually spread the word that I'll be out at the beach in Punta Engano. Most of the local dealers and middlemen will show up with the last offerings they can scrape together. It is a long and trying session, for I have to go through each individual's stock consecutively, bargain reasonably for the fairest price, and be on the lookout for flaws and repairs. One pities the poor dealers, fishermen, or would-be dealers who have pathetically little to offer and yet wait around patiently for hours for their turn. I have been to the Philippines two or three times a year for the past six years, so these dealers, even the scoundrels and rascals, have become cherished friends whom I see more often in many cases than family and close friends back in the States. I try to remember their names and faces, but it is difficult at times, as there are so many of them and so many new ones. After all, it is an attractive profession in a country with enormous unemployment and salary problems. It is gratifying to see some old friends, who start out with very little, move up in the local shell world — and sad to see other old friends lose their profits and sometimes their credibility, such as it is, to cockfighting or at the local casino.

During my most recent trip there, I was buying some shells from one fairly successful young man whose name I should have remembered, and I had to write him a check, so with some embarrassment I had to ask his name. "You forgot my name, but I'll always remember your name, Charlie Glass, because you were the first one to buy an expensive shell from me!" His name was "Dodong" Espinosa and I decided that next time I would remember his name too!



Teddy Talingting, whom I first met in 1977 when he worked for Rudy Dano, now has a fine business of his own in Punta Engano, thanks to his successful shell dealings. He is shown here with his cousin Cornelio behind, one, on his left (rather literally), Felix Costora, a jovial Mactan entrepreneur who, on his motorcycle, makes daily rounds of the Cebu hotels to offer his wares to the visiting shell dealers.



Rudy Dano and his wife, Flora, commercial and specimen shell dealers in Punta Engano. They claim "this is where it all started" with the netting of that first *Conus gloriamaris*.

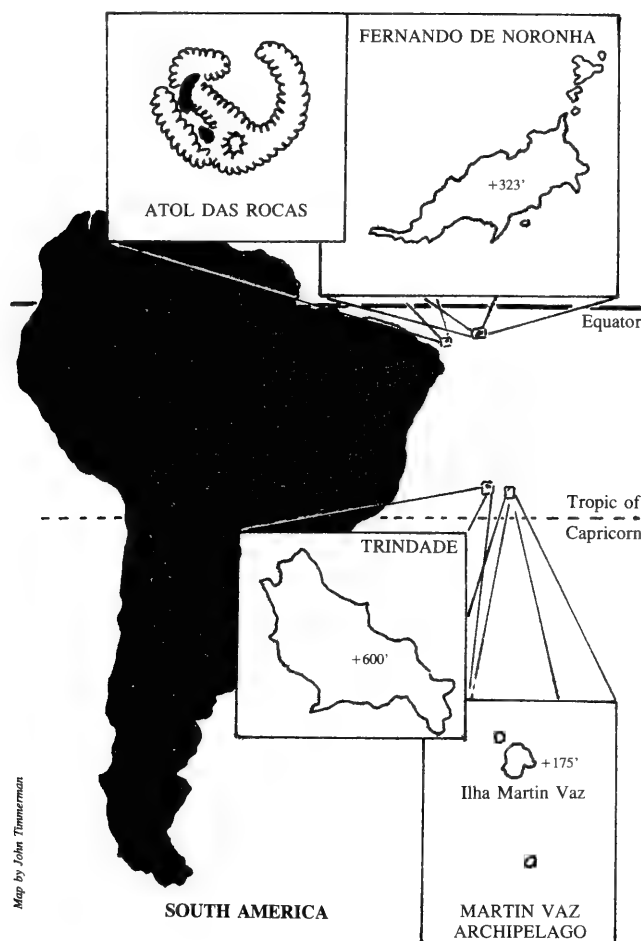


Immanuel ("Jun") Lacanienta Jr., shown here with Marty Beals, is one of the newer dealers in the Cebu City/Mandaue City area, but his eye for quality has made him a leading supplier in a relatively short time.



# TALES FROM OCEANIC ISLANDS: The Biogeography of Insular Marine Gastropods from off Brazil

by Jose H. Leal



in the western extremity of the Romanche Trench off northeastern Brazil are the Fernando de Noronha Archipelago and Atol das Rocas; more to the south, in the eastern end of the Vitoria-Trindade Seamount Chain (also known as Martin Vaz Fracture Zone), are the islands of Trindade and Martin Vaz Archipelago. Created since the birth of the Atlantic some 100 million years ago, these islands have formed chains perpendicular to the South American coast. In the case of this particular ocean, the islands and seamounts situated closer to the continent are usually older than those found in the open ocean, a consequence of the local direction of sea-floor spreading.

My dissertation project at the Rosenstiel School of Marine and Atmospheric Science/University of Miami consists of a biogeographical study of the *prosobranchs* (hard shelled, benthic, or bottom-dwelling, gastropods) from these islands in the southwestern Atlantic Ocean. The main goals of my research are to survey the *prosobranchs* found in these islands and to attempt to determine why they are there, i.e., how the faunal composition of each island can be determined by the interaction between the physical factors of the island and the capabilities and limitations of the each species present there.

More than 320 species of mollusks live in these islands, over a third the number of species Professor Rios examined in 1985 for the entire Brazilian coast. The mollusks included in my study come from samples I collected, by SCUBA in the shallows and dredging in the depths, as well as from E.C. Rios' collection in the Museu Oceanografico do Rio Grande, Brazil, and from other museum collections worldwide.

The most fundamental (and time-consuming) part of my project is the accurate taxonomic identification of these species, a task I am performing with much help from specialists in the U.S. and abroad. For close examination and illustration of very small shells and protoconchs, I have used extensively the scanning electron microscope (SEM) at the Electron Microscopy Laboratory at the Rosenstiel School of Marine and Atmospheric Science. Figures 1-15 exemplify my SEM micrographs of some of these adult micromollusks, juvenile shells and protoconchs.

One of the reasons I chose this study of the Brazilian oceanic islands as my dissertation project is that it contributes to a Brazilian federal survey of these islands aimed at establishing marine national parks and natural reserves in these pristine localities. One of them, Atol das Rocas, has already been designated an ecological reserve. Proposals have been forwarded to the Brazilian government suggesting similar procedures for Fernando de Noronha and Trindade Island. Trindade Island has, in fact, recently been spared the threat of construction of a military base.

A basic objective in my project is to investigate the source of the *prosobranchs* which have colonized the islands, and at the same time to test some propositions in insular biogeography. Another aspect to my study is a computer-assisted comparison of *prosobranch* faunas among the islands, and between each island and the adjacent Brazilian coastal areas. Special attention is paid to the presence of endemic species on any island or group of islands. Endemism is a delicate subject to approach, considering that a quarter to a fifth of the species involved in the project are unnamed, and that, despite Rios' pioneer efforts, a large part of the Brazilian coastal molluscan fauna is still unknown.

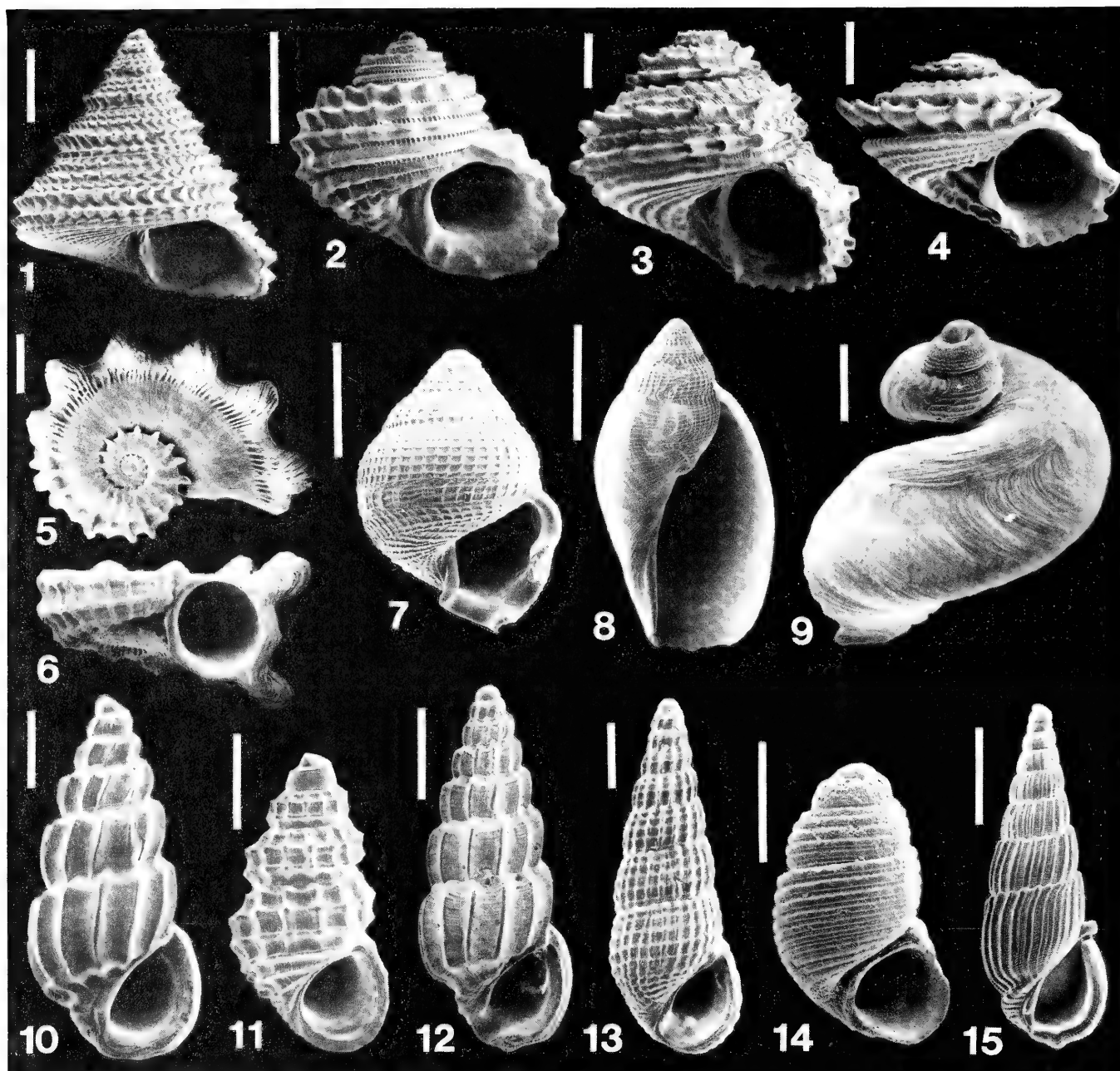
The type of reproductive strategy used by different species may affect faunal composition from island to island. In the development from embryo to adult, some *prosobranch* species go through a pelagic, or planktonic swimming larval stage. Others undergo *direct development*, hatching as miniature adults from a brood pouch or egg cap-

A newly created volcanic island is devoid of life, until it is colonized by organisms from other, geologically older areas. The classical theory of island biogeography discusses how physical factors, such as the surface area of an island, its age, and its distance from the mainland interact to determine how quickly such an island will be colonized and how many species are likely to live there. Other factors besides physical ones are important too. Each particular species has a certain mixture of capabilities and limitations which define its ability to disperse and colonize an island. The study of the processes that make it possible for these shallow water *benthic* (bottom-living) creatures to cross stretches of deep water and colonize a geologically young oceanic island is a paramount aspect of marine biogeography.

Most true oceanic islands have originated from volcanic activity in the deep ocean floor. As a result of plate tectonics and sea-floor spreading through geological time, weaker regions of the oceanic crust have been punctured sporadically by hot magma from below. Big piles of solidified lava and debris produced in these areas during periods of intensified volcanic activity create true oceanic islands and submerged seamounts. Such islands occur off the coast of Brazil:

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Figure 1. *Calliostoma echinatum* Dall, 1881, juvenile shell, Trindade Island. Figure 2. *Parviturbo* sp., Fernando de Noronha Island. Figure 3. *Arene flexispina* Leal & Coelho, 1985, Martin Vaz Island. Figure 4. *Arene* sp., Trindade Island. Figures 5, 6. *Cyclostrema tortuganum* (Dall, 1927), Jaseur Seamount. Figures 7, 8. *Cypraea cinerea* Gmelin, 1791, Fernando de Noronha Island; 7. larval shell; 8; juvenile shell. Figure 9. *Siliquaria squamata* Blainville, 1827, juvenile shell, continental shelf adjacent to

Vitoria Seamount, eastern Brazil. Figure 10. *Rissoina* sp., Vitoria Seamount. Figure 11. *Manzonina caribaea* d'Orbigny, 1842, Fernando de Noronha Island. Figure 12. *Rissoina indiscreta* Leal & Moore, 1989, paratype 23, Atol das Rocas. Figure 13. *Rissoina fenestrata* Schwartz, 1860. Figure 14. Undetermined barleeid, Fernando de Noronha Island. Figure 15. *Folinia bermudezi* Aguayo & Rehder, 1936, Fernando de Noronha Island. Scale bars for Figures 1-6, 8, 12-13, 15 = 1mm; Figures 7, 10-11, 14 = 0.5mm; Figure 9 = 2mm.

sules, and settling down immediately to the life of an adult. The presence of a planktonic larval stage allows a species greater opportunities for dispersal by ocean currents, so that it may colonize distant areas, provided adequate environmental conditions are present, and the arrival of larvae is frequent enough to enable the new population to survive. Larval transport by large oceanic currents occurs in the same way as when seeds and spores of plants are carried by the wind, facilitating the dispersal of these plants from one area to another.

During this free-living, swimming period, a larva can be an active feeder, or *planktotrophic*, eating microscopic algae and organic particles; or it can be *lecithotrophic*, nourished only by its own yolk supply. The ability to feed while in the larval stage enables planktotrophic types to last longer than lecithotrophs, thus giving them a larger potential for dispersal, just as lecithotrophs are, in turn, better "dispersers" than direct developers. Isolated, geologically young oceanic islands have a larger percentage of planktotrophic species, or species that evolved from them, than coastal areas or oceanic

islands near the coast.

Determining reproductive strategies is an important step in the investigation of a species' relative predominance in the different islands. This is accomplished (1) by direct data from the literature, when life histories are known, (2) through comparisons of the larval shell or protoconch morphology when life history is known only for another, closely related species, and (3) when necessary, by complete inference, using protoconch morphology. Planktotrophic larvae usually build protoconchs with elaborate sculptures and more than two or three whorls. Also, planktotrophic protoconchs are frequently divided into a small, well-defined embryonic shell (protoconch I) and a larger larval shell (protoconch II). A sinuous double curve in the external lip of the planktotrophic larval shell, called the *sinusigerous lip*, allows space for the winglike velar lobes of the larva. This sinusigerous lip is visible in the illustration of the larval shell of the widely distributed planktotroph, *Cypraea cinerea* Gmelin, 1791, in Figures 7-8. Lecithotrophic types have a poorly defined embryonic shell; the larval shell has 1.5 to 2 whorls, and no sinusigerous lip. In direct developers the entire protoconch is the embryonic shell.

Dr. P. Bouchet of the Museum National d'Histoire Naturelle, Paris, and I have studied the general distribution of prosobranchs and their types of reproductive strategies in ten seamounts and islands along the Vitoria-Trindade Seamount Chain, and have a paper in preparation. We have found the ratio of planktotrophs to lecithotrophs in both Trindade and Martin Vaz to be just about the same as in the closest continental area, 1,100 km to the west, even though the total numbers of species decreases from the continent towards the open ocean. This fact apparently contradicts observations made in other areas of the world where planktotrophs are relatively more frequent than lecithotrophs in oceanic islands. But the apparent contradiction can be explained by the presence of the chain itself: the submerged but relatively shallow seamounts are usually only 100km apart, so shorter-lived lecithotrophic larvae probably colonize the seamounts in a stepping-stones fashion, moving in stages from continent to seamount to seamount.

However, in the case of direct developers, there has been a marked reduction in numbers in the easternmost seamounts in the chain (towards the ocean). Groups in which the eggs and juveniles are unusually large, as in the family Volutidae, are completely absent from the chain.

In examining material from Atol das Rocas and Fernando de Noronha, off northeastern Brazil, I am finding that their prosobranch faunas are apparently much richer and more diverse than those of Trindade and Martin Vaz. The warmer equatorial waters and the larger number of habitat types available in these localities, including small coral reefs, probably explain this difference. Endemic species are infrequent, perhaps owing to the relatively smaller distance from the coast, but are present nonetheless; several endemic micro-prosobranchs have already been examined (e.g., *Parviturbo* sp., Figure 2; "undetermined barleeid," Figure 14).

Another curious aspect of oceanic islands is that they can provide relatively stable environments for species or genera that otherwise went extinct in other areas because of some shift in their environment. Possible examples of such *differential extinction* in my research are *Rissoina indiscreta* Leal & Moore, 1989, from Atol das Rocas and northeastern Brazil, a species apparently closely related to the Indo-West Pacific *R. turricula* Pease, 1861 and to a large complex of fossil (Miocene and Pliocene) species in tropical seas. The tun shell genus *Malea* is known at present only from the Indo-West and Eastern Pacific, and in the Atlantic Ocean only from Atol das Rocas and Fernando de Noronha, but has been reported by Olsson & Petit from the late Miocene and Upper Pliocene of Florida, Venezuela and Colombia. Another significant example is *Neritopsis atlantica* Sarasua, 1973, family Neritopsidae. The family has extensive Paleogene fossil representation, but only two living species are known, one in the Indo-West Pacific and one in the Atlantic Ocean. *Neritopsis atlantica* was described from Cuba, and we have found several recently dead shells of the species in Trindade Island, representing

a very odd type of distribution for this relatively large (1.5 cm width) species.

In the end result, my project has also had more general consequences. In allowing me to work with a large number of species and the processes affecting their distribution, I have been led to a better understanding of the origins and relationships of the molluscan fauna in the southwestern Atlantic Ocean.

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## COA ISSUES A CALL FOR PAPERS!

If you would like to make a presentation at the 1990 convention in Melbourne, please write to:

1990 COA Convention  
c/o John A. Baker  
147 Hedgegrove Avenue  
Satellite Beach, FL 32937-2113

All letters will be acknowledged and an application will be sent for your completion, so that our Floor Manager may assist you and have the appropriate equipment ready for your presentation. We ask that presentations be in the range of 30 minutes or less.

The Program Committee, headed by COA President Peggy Williams, will review all applications, and final decisions will be based on time, diversity and interest to the membership. We would also like to have alternate programs in case of unforeseen circumstances.

#### HSN To Issue *Epitonium* Supplement

The *Hawaiian Shell News* is releasing its first Supplement in January 1990. "Hawaiian Epitonidae" by Helen DuShane will contain twenty pages covering twenty-six species and twelve genera, and five new species first described in *The Veliger*, Volume 31(3,4): October, 1988. Forty-two photographs will make identification easy. The price is \$8.00.

#### Jacksonville Show Date Changed

Next year's date for the Jacksonville Shell Show has been changed from its regular weekend in late July to a June date to avoid conflict with the mid-July COA Convention. The 1990 Shell Show will be held June 22-24 at the Jacksonville Flag Pavilion. For further information, please call Nellie Hawley, Shell Show Chairman, at (904) 641-4606.

# ABERRANT INDIVIDUALS OF *MERCENARIA*: ARE THEY HOPEFUL MONSTERS?

by David Nicol and Douglas S. Jones

The bivalve genus *Mercenaria* is abundant in strata at least as old as the Miocene along the east and gulf coasts of the United States. The modern distribution of the genus extends from the Gulf of St. Lawrence into the Yucatan Peninsula and also Cuba (Abbott, 1974; Vokes and Vokes, 1983). See distribution map Figure 1. Although Abbott (1974) considers, with some reservation, that there are two distinct species *Mercenaria mercenaria* (Linne, 1758) and *Mercenaria campechiensis* (Gmelin, 1791), we are of the opinion that there is but a single, variable, and wide-ranging species. The basis for our assertion is that *M. mercenaria* and *M. campechiensis* are known to hybridize; these hybrids will produce fertile offspring which give rise to normal individuals (Eversole, 1987). Furthermore, it is often impossible to distinguish some specimens as *Mercenaria mercenaria* or *Mercenaria campechiensis* on the basis of the morphological characteristics of the shell.

The common names for *Mercenaria* include the hard clam and the quahog. The latter name is of Narragansett Indian origin. We know that Indians ate these bivalves because the shells are commonly found in their kitchen middens. The quahog makes good clam linguini and is of considerable commercial importance. Large specimens are used for chowders, whereas smaller "cherrystones" are eaten on-the-half-shell.

*Mercenaria* is normally equivalved; but, during the Pliocene, large populations of this animal from the southeastern United States had an undulatory commissure. In other words, the valves displayed broad, conspicuous undulations. These shells are widely regarded as abnormal or pathological (Wilson, 1983), and they are found in the same strata with the equivalved *Mercenaria* (Jones, and others, 1988).

In two obscure publications, Clench (1948) and Shuster (1966) described Recent specimens of *Mercenaria* that are malformed. We obtained a loan from the Museum of Comparative Zoology (MCZ) of the specimen described by Clench, but the present whereabouts of Shuster's specimen is unknown. We were able to obtain on loan a second malformed specimen from the Museum of Comparative Zoology, and there is a malformed specimen in the mollusc collection at the Florida Museum of Natural History, University of Florida (UF), which we have examined. Of the four specimens we have either examined or seen figured, all have the right valve larger than the left (Fig. 2). If this inequivalved condition were a random event, then the probability of the right valve being the larger in all four instances would be one in sixteen.

The most malformed specimen was that described by Clench (1948) which we will henceforth refer to as specimen #1. It is represented by only the right valve, and the missing left valve was probably only large enough to close the aperture. The beak is high and coiled forward, and the overall appearance is like that of the Jurassic ostracean genus *Gryphaea*. The hinge plate is sunken and the anterior hinge plate is reduced with a sunken area behind it. However, the pallial sinus is normally developed, indicating that the siphons were probably of normal length.

Specimen #2, described by Shuster in 1966, is less modified than that of Clench. The left valve is much flatter and lower than the right valve. The commissure between the valves appears to be undulatory. The lunule, the depressed area below and anterior to the beaks, is larger on the right valve.

The other specimen (specimen #3) from the Museum of Comparative Zoology has the right valve more convex than normal and the left valve less convex than normal. The hinge plate on the left valve is narrower than that of the right valve, but the hinge teeth are normal. The beak and lunule are much larger on the right valve, and the right valve is much higher than the left valve on the dorsal side, resembling a *Spondylus* or most articulate brachiopods. The valves are undulant toward the posterior side.

The least modified specimen is the one in the mollusc collection

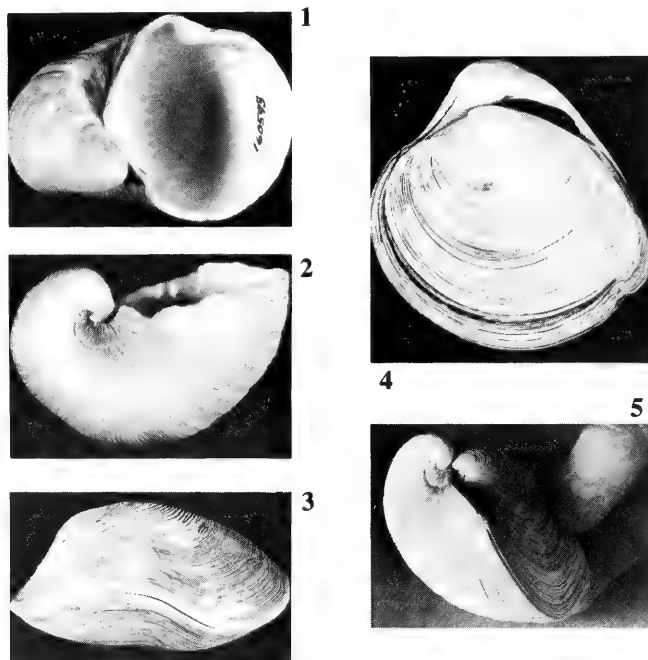


Fig. 2 — 2.1, Interior view of right valve of *Mercenaria* specimen #1 figured by Clench (1948), MCZ#160593. Shell height = 55mm, shell length = 41mm. 2.2, Anterior, external view of MCZ #160593 (specimen #1) showing lunule. 2.3, Marginal view of UF#110566 (specimen #4) showing undulatory commissure. Shell length = 74mm. 2.4, External view of left valve and beak area of larger right valve in MCZ#297793 (specimen #3). Shell length = 88mm. 2.5, Reproduction of photograph from Shuster (1966) showing a "uniquely-shaped, three-inch long specimen" of *Mercenaria* (specimen #2).

at the Florida Museum of Natural History (specimen #4). The lunule is only slightly larger on the right valve. The left valve is slightly smaller than the right valve, and the right valve is higher than the left, particularly along the dorsal margin, again resembling a *Spondylus*. The margins of the commissure are undulant toward the anterior side rather than the posterior side as in specimen #3.

The rate of growth, particularly along the anterior, posterior, and ventral margins of the shell has affected the shape of the abnormal specimens. Normal specimens of *Mercenaria mercenaria* are longer than high, and the convexity, the distance between the valves, is about 55% of the length. Specimen #1 is higher than long, and the convexity of only the right valve is as great as the length. Specimen #3 is slightly higher than long, and the convexity is about 70% of the length. The measurements of length, height, and convexity of specimen #4 are close to that of a normal, equivalved specimen. Specimens #1 and #3 grew faster along the dorsal-ventral plane and more slowly along the anterior-posterior plane than normal specimens.

The approximate ages of the three abnormal specimens we have examined are as follows: specimen #1 is about eight years old, specimen #3 is about ten years old, and specimen #4 is between seven and eight years old. All of these specimens are old enough and large enough to be sexually mature (Eversole, 1987).

*Mercenaria mercenaria* is an active shallow burrower when it is small, but it becomes more sluggish when it grows larger. It is known (Eversole, 1987) that large specimens often do not burrow at all, but lie on one valve on the bottom. It would be impossible for specimens #1 and #2 to burrow. Specimens #3 and #4 would burrow with difficulty. All the malformed specimens were likely living on the bot-

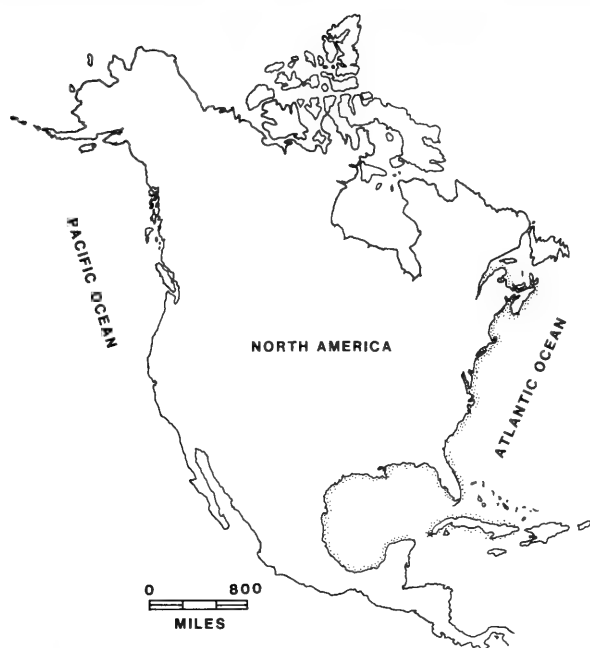


Fig. 1 — Distribution map of *Mercenaria* (stippled) along the east coast of Canada and the U.S., into the Gulf of Mexico and parts of the Caribbean.

tom and not in it when they were discovered, as would a large normal *Mercenaria mercenaria*.

We have not attempted to locate additional specimens of abnormal valves of *Mercenaria*, although specimens should be found in such large mollusc collections as at the National Museum of Natural History, the Academy of Natural Sciences in Philadelphia, and the American Museum of Natural History, New York. In other words, modern specimens of abnormal *Mercenaria* are probably not exceedingly rare. Specimens so abnormal that they sometimes defy classification are found in other bivalves as well. For example, Vokes and Vokes (1983) figured a small bivalve with a pustulose exterior

(plate 50, figs. 10, 10a) which they were forced to label as, "genus? species?" not knowing how it should properly be classified. Previously, most malacologists considered these aberrant specimens of *Mercenaria* to be abnormal, pathological, or malformed, and dismissed them as nothing but curiosities and of no significance in evolution. However, in the view of Goldschmidt (1940), these specimens might be termed hopeful monsters. Goldschmidt's idea was that individuals like those described herein have the potential to become something new. The malformed specimens of *Mercenaria* are preadapted to a life of living on the bottom rather than in the bottom. Goldschmidt admits that most such hopeful monsters would be unsuccessful in starting a new lineage. The odds, analogous to a person being dealt thirteen cards of the same suit in a bridge hand, weigh heavily against their success. But, with many thousands of hopeful monsters spread over millions of years, a few might be successful in beginning a new lineage which could lead, perhaps, to a new genus, a new family, or even a new phylum.

We are greatly indebted to Dr. Kenneth J. Boss of the Museum of Comparative Zoology at Harvard University for the loan of two specimens of *Mercenaria* and for obtaining the page number of one of the references. We thank Dr. Ann E. Pratt for help with photography. This paper is University of Florida Contribution to Paleobiology No. 357.

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## STATE SHELLS??

by Tamara Emmett\*

State Shells? Sure, why not? I mean, after all, we have State Rocks! So far, twelve of our States think that it's a great idea.

The whole idea started in 1965, when North Carolina chose the *Phalium granulatum*, or Scotch Bonnet, and was the first to have a state shell. Soon to follow was Florida. On the 18th of June, 1969, they made *Pleuroploca gigantea* their State Shell. On April 12, 1974, Mississippi followed with *Crassostrea virginica*. In 1984, South Carolina chose *Oliva sayana*, and Maryland adopted a fossil shell, *Ecphora quadricostata*. Four states joined the movement in 1987: Texas elected *Busycon perversum pulleyi* in April of that year, and Georgia chose *Busycon carica eliceans* on April 16th. June 9th, 1987, was the official date when Massachusetts adopted *Neptunea lyrata decemcostata*, and June 30, 1987 was the date on which Rhode Island's State Shell, *Mercenaria mercenaria*, became the ninth on the list (after four months of hard work by the Coventry Junior High Shell Club members. They followed the entire process closely, testifying before committees and lobbying the senators and representatives.)

This year, 1989, has seen three more states added to the list: New

York chose *Argopecten irradians*, Oregon selected *Fusitriton oregonensis* in May, and Connecticut made its choice of *Crassostrea virginica* official on July 1, becoming the twelfth state to name a State Shell.

We welcome information from shell clubs about exact dates, and any additions and corrections.

#### THE LIST:

1965	North Carolina	<i>Phalium granulatum</i> (Born, 1778)
6-18-69	Florida	<i>Pleuroploca gigantea</i> (Kiener, 1840)
4-12-74	Mississippi	<i>Crassostrea virginica</i> (Gmelin, 1791)
1984 <sup>1</sup>	Maryland	<i>Ecphora quadricostata</i>
1984	South Carolina	<i>Oliva sayana</i> Ravenel, 1834
4-1987	Texas	<i>Busycon perversum pulleyi</i> (Hollister, 1958)
4-16-87	Georgia	<i>Busycon carica eliceans</i> (Montfort, 1810)
6-9-87	Massachusetts	<i>Neptunea lyrata decemcostata</i> (Say, 1826)
6-30-87	Rhode Island	<i>Mercenaria mercenaria</i> (Linne, 1758)
1989	New York	<i>Argopecten irradians</i> (Lamarck, 1819)
5-1989	Oregon	<i>Fusitriton oregonensis</i> (Redfield, 1848)
7-1-89	Connecticut	<i>Crassostrea virginica</i> (Gmelin, 1791)

\* Past President, Coventry Junior High Shell Club, 19 Foster Drive, Coventry, Rhode Island 02816. COA member Tamara has amassed the information for this article with the help of her fellow students and her teacher, Kay Peterson, who also belongs to COA.

<sup>1</sup> Part of the impetus for the "State Shell Movement" can be traced to remarks made by R. Tucker Abbott at the First Day Ceremonies for the Seashell Stamps at Harvard's Museum of Comparative Zoology on April 4, 1985. — Kay Peterson



## CARIBBEAN CORALLIOPHILIDAE AND TYPHIDAE

by Kevan Sunderland



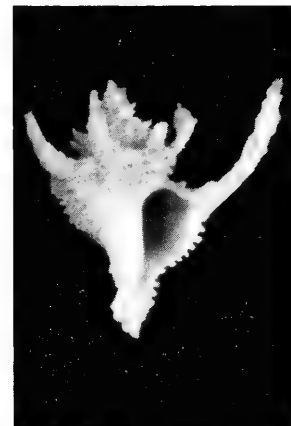
*Coralliophila aberrans* (C.B. Adams, 1850). 2 fms., Bimini, Bahamas. 22mm.



*Coralliophila caribaea* Abbott, 1958. 2 fms., Pickles Reef, Key Largo, FL. 35mm.



*Latiaxis (Babelomurex) dalli* (Emerson & D'Attilio, 1963). 140 fms., off Ft. Myers, FL. 55mm.



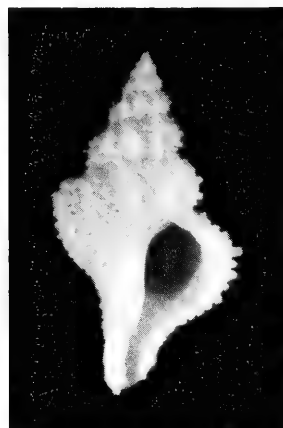
*Latiaxis (Babelomurex) dalli* (Emerson & D'Attilio, 1963). 90 fms., Barbados. Juvenile, 20mm.



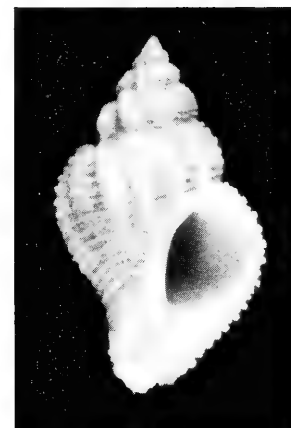
*Coralliophila galea* (Reeve, 1846). 2 fms., Pickles Reef, Key Largo, FL. 41mm.



*Coralliophila kalafuti* Petuch, 1987. 1 fm., Key Largo, FL. 24mm.



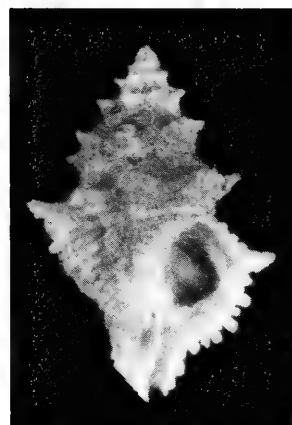
*Coralliophila lintoni* Verrill, 1882. 140 fms., off Key West, FL. 26mm.



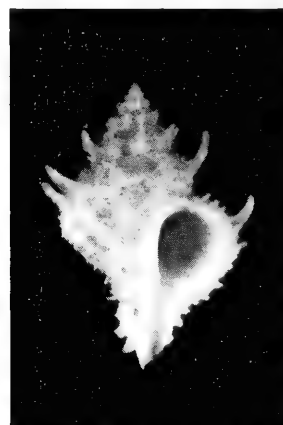
*Coralliophila* c.f. *nivea* (A. Adams, 1853). 140 fms., off Key West, FL. 39mm.



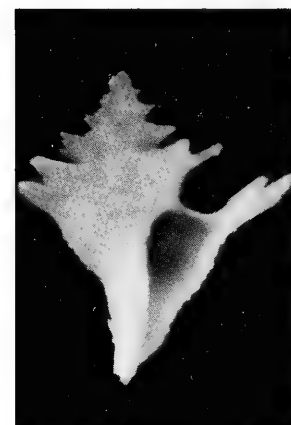
*Coralliophila richardi* (Fischer, 1882). 100-120 fms., off Key West, FL. 18mm.



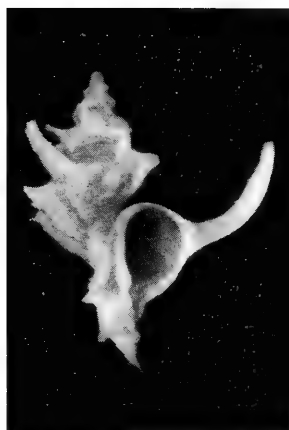
*Coralliophila scalariformis* Lamarck, 1822. 20 fms., 30 miles S.E. of Emerald Isle, NC, on wreck of "Cassimer." 33mm.



*Coralliophila tectumsinense* (Deshayes, 1856) 140 fms., Barbados. 25mm.



*Latiaxis (Babelomurex) fax* (Bayer, 1971). 140 fms. Sombrero Light, Marathon, FL. 22mm.



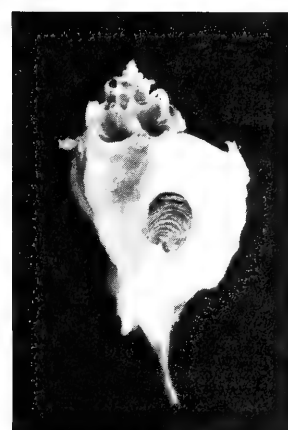
*Latiaxis (Babelomurex) juliae* (Clench & Aguayo, 1939). 140 fms., Barbados. 23mm.



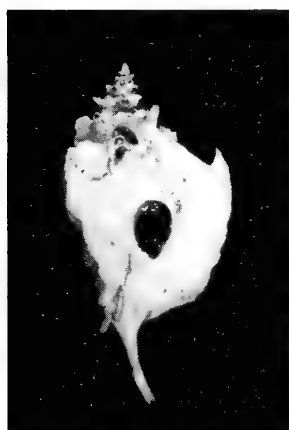
*Latiaxis (Babelomurex) mansfieldi* (McGinty, 1940). 70 fms., Alligator Reef off Islamorada, FL. 25mm.



*Latiaxis (Babelomurex) sen-tix* (Bayer, 1971). 140-160 fms., Florida Straits. 41mm.



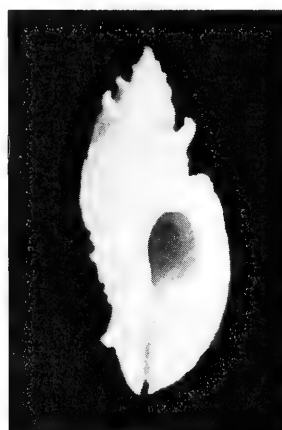
<sup>1</sup>*Talityphis expansus* Sowerby, 1874. 50 fms., Caribbean side of Panama. 39mm.<sup>1</sup>



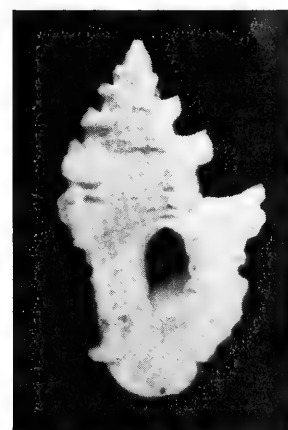
*Talityphis perchardei* Radwin & D'Attilio, 1976. 2 fms., Martinique. 34mm.



*Typhinellus sowerbii* Broderip, 1833. 50 fms., Caribbean side of Panama. 31mm.



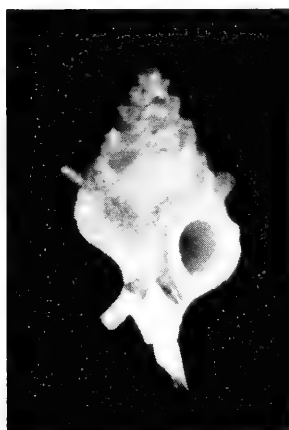
*Pterotyphis pinnatus* (Broderip, 1833). 1 fm., Bimini, Bahamas. 34mm.



*Tripterotyphis triangularis* (A. Adams, 1856). Hope-town, Abaco, Bahamas. 42mm.



*Laevityphis bullisi* Gertman, 1969. 70 fms., Gulf of Venezuela. 32mm.



*Trubatsa longicornis* (Dall, 1888). 140 fms., Key West, FL. 19mm.

<sup>1</sup>*Talityphis expansus* and *T. perchardei* are often synonymized. We illustrate both here as a comparison.

Note: The names used for the Typhidae are according to D'Attilio and Hertz, 1988.

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Photos courtesy of the author

The three authors of *Phyllonotus eversoni*, left to right, Don Shasky, Barbara Myers and Anthony D'Attilio, and on the far right, Gene Everson holding a very large specimen.



Six specimens of *Phyllonotus eversoni* which came up in my net in 1988.

## WANDERINGS OF AN ITINERANT MALACOLOGIST V

### Cocos Island, Costa Rica — A Dive on the Wild Side

by Donald R. Shasky, M.D.

If you like a tropical rain forest that has 22 feet of rain per year, you will love Cocos Island. You say you like to shower under a different waterfall every day? Go prepared to stay a while, for there are 200 waterfalls to choose from. Maybe your bag is having a wahoo explode on your lure before or after you dive. If so, bring plenty of lures. If sharks are one of the ways you get your jollies, you'll be ecstatic on every dive. Whitetips and hammerheads abound, with occasional silvertips and a few other species thrown in. There are huge morays — some as fat as your thigh — leopard rays, and an occasional manta. There are many dive sites on Cocos Island. Whether shallow or deep, each dive is a dive on the wild side.

Cocos Island was opened up for divers in 1982, with the arrival of the *Victoria af Karlstad*, an 82 foot motor schooner from Sweden. The *Victoria* takes dive parties from Puntarenas, Costa Rica to Cocos Island. Usually, trips are for 12 days with eight days of diving and four days for the round trip — Cocos Island is approximately 300 miles from Puntarenas. The crew of the *Victoria* is as congenial and helpful as a guest could want. They are like family for those of us who return year after year.

As far as I know, I was the first diver-shell collector to have the privilege of collecting there. My first trip was in March, 1983, and I have not missed a springtime trip since then. In addition to diving, there are some low tides for shore collecting. While we are decompressing from our dives, we will frequently dredge or attend to our tangle nets. We usually have two day dives and one night dive a day.

Those with whom I have been regularly diving at Cocos Island include Dr. Michael Montoya of San Jose, Costa Rica; Kirstie Kaiser of Park City, Utah; and Doug von Kriegelstein of Loma Linda, California.

Before you rush to pack your bags, you need to know that Cocos Island is one of Costa Rica's national parks, and shell collecting is not permitted unless it is done in conjunction with a study being carried out for the Costa Rica National Park Service. Fernando Cortes, who accompanied us in 1983 and 1986, is Chief of the Costa Rica National Park Service Research Department. Sr. Cortes is a walking encyclopedia of information, not only about Cocos Island, but also about the flora and fauna of all of Costa Rica.

Up until 1983, there were only 118 species of mollusks reported from Cocos Island, and that included cephalopods. Our manuscript

will bring the number of species to over 500. Several species new to science have also been described, and others are in press or in manuscript. Altogether, there are still between 35 and 40 undescribed species remaining, many of them Rissoaceans.

The mollusk population of Cocos Island is a curious mix of Panamic, endemic, Indo-Pacific, and cosmopolitan species. One can appreciate this phenomenon only if he understands the various currents and countercurrents that sweep around Cocos Island. To perhaps oversimplify a difficult subject, there's a strong eastward flowing complex of currents, bringing in warm tropical water from the Western and Central Pacific. That band of warm water is bracketed by two broad westward-flowing currents, one from the Northern and one from the Southern Hemisphere. All this is further complicated in the region of Cocos Island by a minor complex of currents originating near the coast of Central America. All these currents have an effect of one sort or another on the molluscan fauna of Cocos Island.

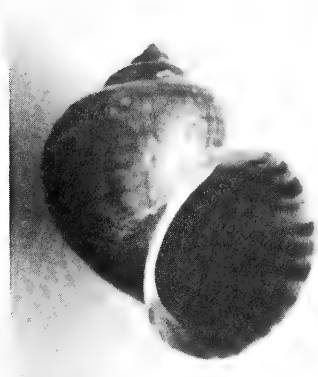
From the Indo-Pacific, *Terebra maculata* (Linne, 1758) and *Conus tessulatus* Born, 1778 are abundant. *Cypraea talpa*, *C. caputserpentis* and *C. moneta*, *Mitra mitra*, *M. papalis*, and *Terebra crenulata*, all Linne, 1758, are frequently found, as well as *Cypraea alisonae*, Burgess, 1983, *Pseudocypraea adamsonii* (Sowerby, 1832), *Bursa granularis* (Roding, 1798), and *Spondylus nicobaricus* Schreibers, 1793.

Some of the rarer Panamic species that we have found at Cocos Island include: *Haliotis roberti* McLean, 1979; *Epitonium aciculatum* (Hinds, 1844); *Murexiella laurae* Vokes, 1970; *Morum veleroae* Emerson, 1968; *Thala jeancateae* Sphon, 1969; *Crassispira cerithoidea* (Carpenter, 1857); and *Placiphorella blainvillii* (Broderip, 1832).

Without a doubt, the most exciting new species found to date at Cocos Island is the magnificent *Phyllonotus eversoni* D'Attilio, Myers, and Shasky, 1987. This species is taken in tangle nets set in depths of 300-400 feet. The largest one so far measures 20.2cm. This was named in honor of COA member Gene Everson, who collected the first one in his net in 1984.

Two chitons have been described from our work. These are *Ischnochiton victoria* Ferreira, 1987 and *Acanthochitona shaskyi* Ferreira, 1987. *Ischnochiton* is taken while diving, and *Acanthochitona* is dredged in 46-60m. Another new species is *Murexiella shaskyus* D'Attilio and Myers, 1988, taken by diving and dredging.

(Continued on page 17)

*Pomacea haustum* (Reeve, 1858).*Pomacea bridgesi* (Reeve, 1856).

Photos by the author

## A COMPARISON OF THREE SPECIES OF POMACEA AND THEIR SPAWN

by Beatrice E. Winner

*Pomacea paludosa* (Say, 1829), commonly called the Florida Apple Snail, has other species that resemble it. Through my interest in egg masses I discovered that the egg masses differ within the genus.

In May, 1988, Carole Marshall of Lake Worth, Florida brought me some egg masses, along with the snail that laid them, which she found in an inert canal in Hypoluxo. They were unfamiliar to me and I wanted some specimens to photograph, so we returned to the canal and collected more eggs and snails for study.

The shell resembled *Pomacea paludosa*, but the eggs were different. Dr. Fred Thompson, of Gainesville, Florida, identified it as *Pomacea bridgesi* (Reeve, 1856), a Brazilian species introduced into South Florida in Monroe, Dade, Broward, and Palm Beach Counties.

The eggs of *P. bridgesi* are pink, calcified, extremely fragile, and attached to each other on all sides. The animal is a uniform tan, and the shells are 40-60mm in height. One egg mass, according to Carole, was laid on a plant stem above the water level in her pail.

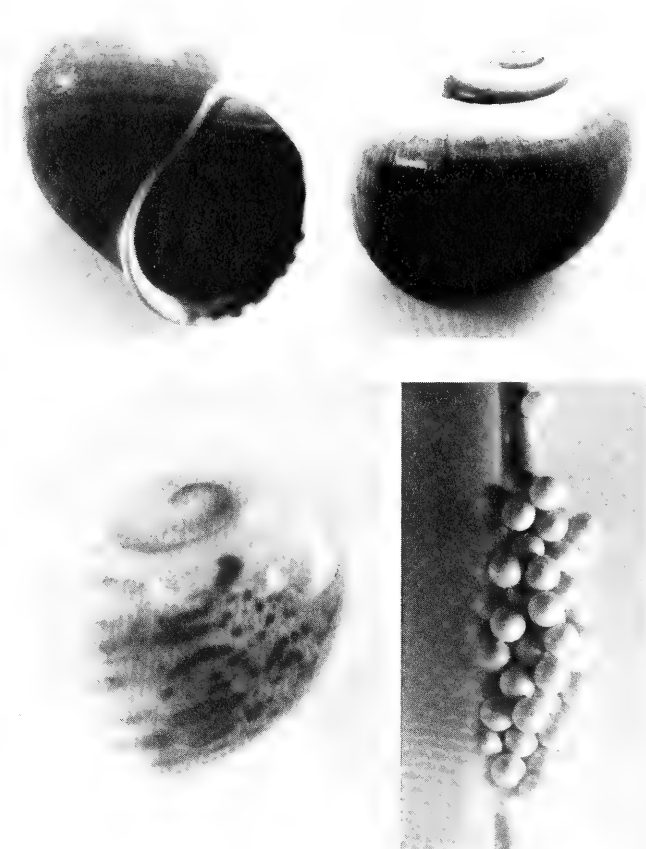
*P. paludosa* eggs are also pink, but each egg in a clutch is laid individually, attached to a stalk, and they are less fragile. The shells are from 40-70mm in height and the animals are black.

The Apple Snail, *P. paludosa*, occurs from extreme southeastern Alabama, and Georgia, down through the Florida peninsula, and also occurs naturally in Cuba. According to Dr. Thompson it is incorrectly reported in the literature that man introduced it into Florida. There are fossil specimens in the Florida Museum of Natural History to show that it has existed continuously in the Florida peninsula since the Pliocene era.

Carol also brought another *Pomacea* to my attention, a much larger snail that lays green eggs. Intrigued by these green eggs, I purchased, from the pet shop where Carole found them, both the snails and the green eggs they had laid on the side of the aquarium. These eggs, also extremely fragile, are attached to each other like *P. bridgesi*, but are larger. The snails are still alive at this writing, and some of the green eggs have hatched. I was convinced that this large snail had laid the eggs since the young hatched with a green apex, unlike other *Pomacea* species. This green color faded away as they grew. The animal is black like *P. paludosa*.

Shell collector John Spangler found this species in 1981 at Lake Osborn, Florida. He showed slides of the snail with its green eggs at a club meeting not long ago, but did not know its name. One of the largest in his collection measures 105mm. The largest in my aquarium is 90mm.

Several specimens collected by Carole Marshall were sent to Dr. Thompson, who identified them as *P. haustum* (Reeve, 1858), and said, "*P. haustum* has not been recorded in the United States." Ranging from eastern Peru and northern Bolivia, perhaps through adja-

Newly hatched *Pomacea paludosa* and pink egg mass.

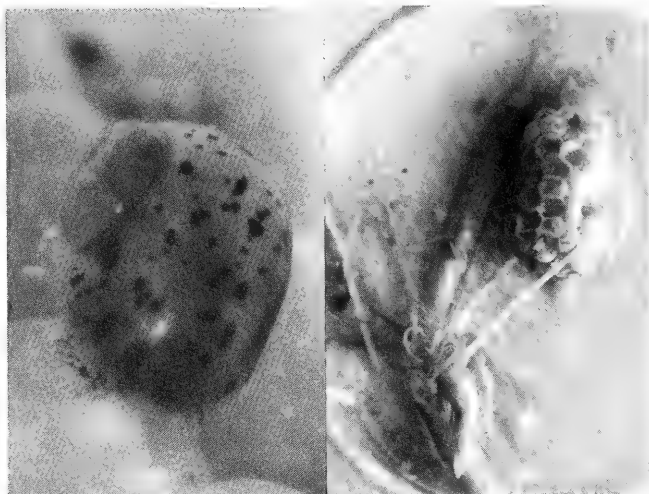
cent Brazil, it may be known under several synonyms.

Obvious differences in shell morphology also separate the three species: *P. bridgesi* has a high spire, *P. paludosa*, has a low spire, while the very large shell of *P. haustum* has a moderate spire and deeply channelled suture. These differences can be seen in the newly hatched young.

The *Pomacea*, members of the family Ampullariidae, have smooth, moderately strong shells and belong to the order Mesogastropoda. Found in all worldwide tropical and subtropical regions except Australia, these operculate snails are capable of both aquatic and aerial

\* Beatrice Winner, 342 Southwind Drive #101, North Palm Beach, FL 33408, is the author of A Field Guide to Molluscan Spawn, V.1.





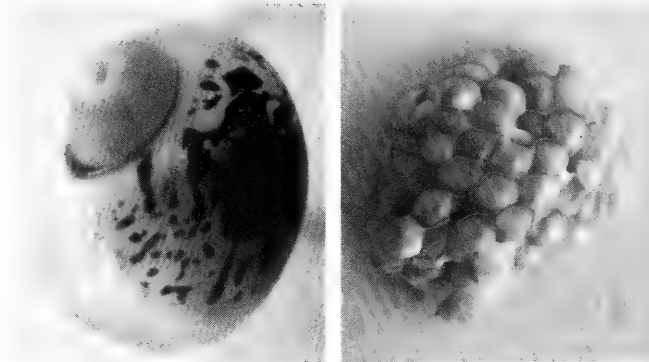
Newly hatched *Pomacea bridgesi*, pink egg mass and plant stem.

respiration. *Pomacea* are bisexual like most operculates, reproducing by cross-fertilization.

*Pomacea*, I have been informed, are most active at night, and are capable of aestivation by burrowing in the mud when marshes begin to dry. (*Pomacea* species in my aquarium are also active at night.) Their size seems to vary in different areas, due to drought, inconsistent water levels, availability of food, and number of predators.

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Newly hatched *Pomacea haustrum* with green apex, and green egg mass.

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## SHELLS IN PRINT

by Richard L. Goldberg

The marine molluscan fauna from the Netherlands Antilles, and in particular Aruba, Bonaire and Curacao, herein the "ABC's," contains a wealth of species that are found throughout the Caribbean. It is, though, the smaller, endemic micro-species which are of greatest interest to specialists in the Caribbean fauna. Until recently, no one book covered these species in depth.

**MARINE GASTROPODS FROM CURACAO, ARUBA AND BONAIRE** by K.M. DeJong and H.E. Coomans, 1988 (E.J. Brill, Leiden, Netherlands), helps fill this void by including and illustrating many of these lesser known species. The senior author spent many years collecting in the ABC's, and had access to many important collections of Netherlands Antilles marine shells. This 261 page hard bound volume should not be considered a stand-alone shell identification guide, but an important supplement to such classic works as *American Seashells*, *Caribbean Seashells*, *The Western Atlantic Marine Mollusks* described by C.B. Adams (Occasional Papers on Mollusks, MCZ), and *Johnsonia*. Commonly known Caribbean species are cross-referenced to these works, while the species of local and limited distribution are treated in more depth and are illustrated.

Forty-seven black and white plates illustrate nearly 500 species. Of particular interest are the excellent scanning electron microscope photographs of small and micro species. Those species not illustrated in this volume are cross-referenced to illustrations in the other major works. This is a most useful feature, making this book an integral part of a Caribbean fauna library.

Fifty-eight species are described as new to the Caribbean fauna. Of note are *Nassarius kaicherae*, often found in collections as *N. cf. albus* or *N. cf. antillarum*, the latter against which the new species is compared. Other new species described from the more popular

\* P.O. Box 137, Fresh Meadows, NY 11365

families include *Terebra curacaoensis*, said to be common at Curacao and Aruba, *Inodrillia vinki*, similar to *Cerodrillia clappi* Bartsch & Rehder, 1939, and a number of other new Turridae species, two new species of *Engina*, *slootsi* and *demani*, both with a type locality from Aruba.

The authors' conservative approach to identifications is evident in the listing of over 32 species needing further investigation — no definitive identification is given for these species, nor are they described as new. Their conservative approach also extends to exclusion of some suspect species. One in particular that comes to mind is *Muricopsis aliciae* Petuch, 1987, described as endemic to Bonaire. I was able to collect a few of these off Klein Bonaire in 1981, and upon close inspection they appear similar to what DeJong and Coomans illustrate as *Favartia germainae* (Vokes & D'Attilio, 1980) with a type locality of Puerto Rico. No mention is made *M. aliciae*, whether by design or possibly by a crossing of publication dates (1987 and 1988).

A systematic index at the beginning of the book lists all of the families represented in the ABC's, together with the number of species, new species, and unidentified species which are treated in the text. DeJong and Coomans recognize 723 species from the ABC's. In essence, this book becomes the most complete and up-to-date marine molluscan faunal survey of these islands.

Identification keys to a number of the more-difficult-to-identify families (Rissoidae, Vitrinellidae, Melanellidae, Turridae, among others) make the book a useful identification tool.

**Marine Gastropods from Curacao, Aruba and Bonaire** is published at \$42.50. I would strongly recommend this book to any collector who has even the slightest interest in the Caribbean fauna. If you are a Caribbean specialist, this book is a must!

## WANDERING OF AN ITINERANT MALACOLOGIST V

(Continued from page 14)

For a very interesting and informative report of Cocos Island, written from a different perspective, read "Return to Paradise" in the Cousteau Society's *Calypso Log* by Richard C. Murphy, April, 1988.

Since this article was written, the *Victoria* has returned to Sweden. It will not be back for the 1989-90 season, and, as of this writing, it is uncertain whether it will return at all.

Next time I will discuss one of my favorite ways of collecting shells: from shrimp nets.

## BOARDTALK . . .

From COA Treasurer **WALTER SAGE**: Thanks to the approximately 400 members who have already sent in their dues for 1990. We would like to hear from the rest of you as soon as possible. We will be sending the March 1990 issue to all members of record as of that mailing date, specifically so that you will have the registration information for the 1990 Melbourne Convention. Our jobs have been made easier by those who have sent their 1990 dues so promptly — your consideration is most appreciated.

## EDITORIAL

Our much-beloved, hard-working and hard-pressed COA treasurer, **Walter Sage** has one of the heaviest work loads in the organization. He keeps finances straight, pays all the bills, and is in charge of all the dues renewals for an organization that now boasts over 1,000 members. He serves on the *American Conchologist* editorial committee, reading copy and reviewing articles submitted for your enjoyment, and on the COA Publications Board. He acts as Advertising Manager for *American Conchologist*, and contributes a regular column, "Contemporary Conchology." As if this isn't enough, he keeps the official membership roster (in conjunction with Membership Chairman **Bobbie Houchin**) and the mailing list for the *American Conchologist*. What would we do without him?

You can help relieve some of his burden by remembering to get your COA dues in on time. We know you mean to pay those dues. After all, *American Conchologist* is the best bargain in the field! And the conventions are fantastic! So don't procrastinate. Don't make COA spend your money to send out all those extra dues reminders. Don't make Walter's job harder or add gray hairs to his head! Pay your dues now! And while you're doing it, drop Walter a note saying "Thanks!"

## SNORKLING SEA SNAILS

A small, air-breathing limpet of the Californian rocky coast lives deep in water channels where it receives precious oxygen from trapped, wave-made air bubbles. The half-inch-long limpet, *Trimusculus reticulatus* (Sowerby, 1835) lives in two worlds — one submerged in seawater when it feeds by secreting a mucus net in which it traps water-borne food particles — and in another world in trapped air bubbles in surge channels when it can breathe in oxygen.

In a clever series of experiments and observations, biology student, Steven Haddock, records his discoveries about the heretofore secret life of a well-known west coast pulmonate limpet (*The Veliger*, vol. 32, pp 403-405, Oct. 1989). Whether submerged by the sea or exposed to air, this curious white limpet is safely tucked away in intertidal crevices and mini-caves. As Haddock writes, "If nothing else, this unique situation reminds us to keep our eyes open for the unexpected solutions to the demands placed on organisms by nature."

— **R. Tucker Abbott**

## DONATE NOW to the 1990 AUCTION!

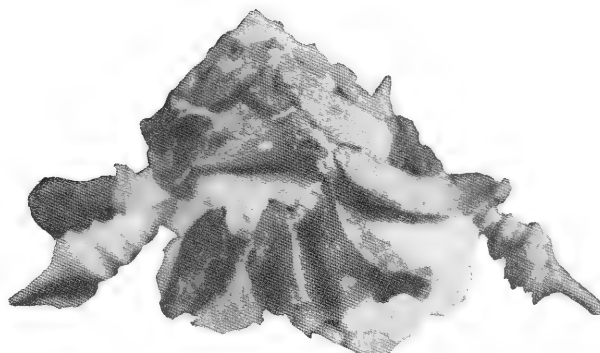
Search through your collection, ransack the attic, and scour through your bookshelves. It's time to start sending donations for the 1990 COA Auction, Raffles and Door Prizes. Shell books, sealife, shell art, and especially shells are welcome, along with anything else you think might be of interest. Remember, the Auction is COA's only money-making event, and it helps keep our fine Grants and Scholarships Program afloat. A record \$4000 was awarded in 1989. So dig deep for those donations! And send them to:

1990 COA Convention  
c/o John Baker  
147 Hedgegrove Avenue  
Satellite Beach, FL 32937-2113

All donations will be acknowledged, and if you will place a dollar value on the items you donate, we will be happy to furnish you with a receipt.

## Good News for Bivalve Collectors!

The word is from Brisbane, Queensland that Kevin Lamprell and Thora Whitehead are hard at work on a new book on the bivalves of Australia. They've spent a lot of time this summer in Europe visiting museums and photographing types, and are now back at home, hard at work on the text. A popular book on bivalves of the Indo-Pacific region has long been needed, so we wish them good luck and a speedy conclusion to their worthy task.



. . . and Another *Xenophora* with a Taste for the Rare and Exotic: This individual of *Xenophora pallidula* Reeve from Durban, South Africa, seems to be affected with "JAWS-mania" and has decorated himself (herself?) with a rather nice specimen of a fossil shark's tooth! — **Charles Glass and Robert Foster**.

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## Congratulations, Marianne!

Everyone who attended the San Diego COA Convention will be glad to know that Marianne Forrest Loveless of Lubbock, Texas gave birth to a baby boy, Tanner Forrest Loveless, on August 8, 1989. Congratulations to Marianne, her husband John, and especially to Tanner. Let's start him out on Latin names, Marianne!

## SHELLS IN PRINT

by Richard L. Goldberg

The land snails comprise approximately half of the estimated 60,000 known species of snails. While their diversity in color, shape and sculpture has made them a favorite of many collectors, identification of the terrestrial and tree snails has always been a problem, especially with the more obscure species, due to lack of available identification guides. Much of the landshell literature helpful in classifying these snails has appeared in the form of scientific monographs and papers not often available to the amateur conchologist.

This problem has finally been addressed with the arrival of **COMPENDIUM OF LAND SHELLS**, by R. Tucker Abbott (American Malacologists, Burlington, Massachusetts, 1989). A companion to his successful **Compendium of Seashells**, Dr. Abbott's new 240 page hardcover book illustrates over 2000 species of pulmonate and prosobranch mollusks with crisp, high quality color photographs. Collectors who have yet to be exposed to the diversity of the land shells will have a field day scouring the pages of the **COMPENDIUM**! The exotic shapes and colors are bound to convert even the skeptic to land shell collecting.

Not only does the book help with identification, but its truly informative introduction will give the reader a solid basis for understanding these fascinating mollusks. With such introductory sections as, "Who Are the Land Shells? — Major Classifications and Names," "Where Land Shells Live," "The Geography of Land Shells," "Land Shells As Disease Carriers," and "Brief History of Land-shell Collecting," collectors with little or no knowledge of the land mollusks will take a giant leap into the world of land shell collecting. And for the advanced enthusiast, the introduction provides additional and pertinent material necessary when researching a particular specialty. Included in the introduction are many spectacular photographs of living land snails, with captions to help us to understand the form, sculpture, shape, or color of these mollusks. The first color photographs of living Polymita snails grace the title page.

The section entitled, "Illustrated Guide to the Land Shells" makes up the bulk of the book. Following the same format as the **Compendium of Seashells**, it illustrates about twelve species per page; an informative caption includes common and Latin name, average size, locality, and often an identification characteristic or other interesting note. The many holotypes illustrated will make the **COMPENDIUM** a must for the professional researcher. The species are arranged taxonomically, from the prosobranchs (or operculates) through the pulmonates (or air breathers), and a good, representative selection of the known species is included.

Probably the most useful contribution of the book, aside from the identification section, is the bibliographies. Since no such book can ever encompass all of the land shells, this section provides a springboard into further research. Along with a "General and Current Journal" section, listing titles treating land mollusks, there is a geographical bibliography which contains hundreds of citations grouped by regions.

The section entitled "Classification of the Landshells with an Illustrated Bibliography" is the shining star of the book. To help narrow down an unidentified land shell specimen to its family, the book illustrates, as a key, a representative species from each family. A listing of the major literature for each family is followed by a taxonomic classification (subfamily and main genera). This section should make beginners as familiar with the taxonomic arrangement of the land mollusks as they are with that of the marine shells.

The advanced collector might dispute the generic placements of a few species. But in my years of land mollusk research I have always found the scientific community to disagree in this area, so until more is known about the land mollusks, and researchers can begin to look at the bigger picture, I dare say that there is probably no right or wrong. **COMPENDIUM OF LAND SHELLS** is the most ambitious land shell book since Pilsbry's **Manual of Conchology**, and offers, without doubt, the finest illustrations ever. At the publication price of \$56.00, **COMPENDIUM OF LAND SHELLS** is also one of the

least expensive color books of this magnitude to be published in the past few years.

With the rapid loss of our precious natural land resources, there is the very good chance that many of these fascinating land mollusks will disappear too. Hopefully, bringing to light the beauty that is found in the forests will help slow their destruction. But if not, **COMPENDIUM OF LAND SHELLS** will have recorded a portion of natural history for future conchologists who may not have the chance to experience the real thing.

1990 WINTER & SPRING  
SHELL SHOWS & OTHER EVENTS

by Donald Dan

Fourteen shell shows have been slated during the first six months of 1990. The usual July date of the Jacksonville Shell Show has been changed to June to avoid conflict with the July COA Convention activities in Melbourne.

Other notable changes are: the absence of the Ft. Myers Shell Show and the one-time-only change of the Broward Shell Show (Ft. Lauderdale) date to July due to renovation of its exhibition hall. The July 5-7 date of the Broward show is intended to link up with the July 9-13 COA Convention, giving an opportunity for the conventioners to take in a shell show during their stay in Florida.

An early June date has been set for the American Malacological Union in Woods Hole, Massachusetts to avoid the large Summer crowd at the Cape Cod area.

- |                           |   |
|---------------------------|---|
| Jan. 19-21                | <b>Astronaut Trail Shell Show</b> , Melbourne, FL<br>Jim & Bobbi Cordy, 385 Needle Blvd.<br>Merritt Is., FL 32953 .....(407) 452-5736   |
| Jan. 19-21                | <b>Greater Miami Shell Show</b> , N. Miami, FL<br>Gayle Motes, 7305 N.W. 59 Street<br>Tamarac, FL 33321 .....(305) 726-5190   |
| Feb. 2-3                  | <b>Naples Shell Show</b> , Naples, FL<br>Anna V. Szent-Kirallyi, 811, 98th Ave. North<br>Naples, FL 33963 .....(813) 597-6115   |
| Feb. 16-18                | <b>Sarasota Shell Show</b> , Sarasota, FL<br>June Bailey, 813 Bayport Way<br>Long Boat Key, FL 34228 .....(813) 383-6657  |
| Feb. 23-25                | <b>St. Petersburg Shell Show</b> , Treasure Is., FL<br>Bob & Betty Lipe, 440 75th Avenue<br>St. Petersburg Beach, FL 33706 .....(813) 360-0586  |
| Mar. 1-4                  | <b>Sanibel Shell Fair</b> , Sanibel, FL<br>Jean Hallstead, 1077 S. Yachtsman Drive<br>Sanibel, FL 33957 .....(813) 472-9397   |
| Mar. 8-10                 | <b>Marco Is. Shell Club Show VIII</b> , Marco Is., FL<br>Robert & Joan Scribner, 1012 S. Collier, #112<br>Marco Island, FL 33937 .....(813) 394-0399                                      |
| Mar. 16-18                | <b>Treasure Coast Shell Show</b> , Stuart, FL<br>Ted Jacaruso, 1964 NW Pine Tree Way<br>Stuart, FL 34994 .....(407) 692-0270  |
| Mar. 30-<br>Apr. 1        | <b>Central Florida Shell Show</b> , Orlando, FL<br>Kathy Sarkin, 20620 Majestic St.<br>Orlando, FL 32833 .....(407) 568-4237  |
| Apr. 20-22                | <b>Greater Georgia Shell Show</b> , Atlanta, GA<br>Bill & Bunny Fulton, 3878 Granger Drive<br>Chamblee, GA 30341 .....(404) 451-3441  |
| Apr. 27-29<br>(Tentative) | <b>St. Louis Shell Show</b> , St. Louis, MO<br>Jacob Gettleman, 4032 Garden Lane<br>Granite City, IL 62040 .....(618) 931-1312  |
| May 5-6                   | <b>Long Island Shell Show</b> , Freeport, NY<br>Jon & Vi Greenlaw, 5 Etna Lane<br>Dix Hills, NY 11746 .....(516) 421-5235   |
| Jun. 3-7                  | <b>American Malacological Union Annual Meeting</b> ,<br>Woods Hole, MA<br>Dr. Roger Hanlon, Univ. of Texas, Medical Branch<br>Galveston, TX 77550-2772 .....(409) 761-2133<br>or 761-2101 |
| Jun. 22-24                | <b>Jacksonville Shell Show</b> , Jacksonville Beach, FL<br>Nellie Hawley, 11604 Surfwood Ave.<br>Jacksonville, FL 32216 .....(904) 641-4606   |
| Jun. 23-24                | <b>IX Salon International du Coquillage</b> ,<br>Lutry, Switzerland<br>Dr. Ted W. Baer, 1602 La Croix<br>Switzerland .....(021) 393771 or 20737   |

## COWRIES AND THEIR RELATIVES OF SOUTHERN AFRICA — A study of the southern African Cypraeacean and Velutinacean gastropod fauna

by William Rune Liltved. 1989. 208 pp., 60 line illustrations, more than 550 color photos. Seacomber Publications. \$65, plus \$4 UPS or \$7 surface mail overseas. Also available from Mal de Mer Enterprises, P.O. Box 482, West Hempstead, NY 11552.

by Walter Sage

One of the most beautiful and lavishly illustrated shell books produced in recent years, this volume provides the first account for the shell collecting public of the anatomy of members of the gastropod families Cypraeidae, Ovulidae, and Triviidae. Building on the data recorded in *Sea shells of southern Africa* (Kilburn & Rippey, 1982) and *Cowries of the world* (Burgess, 1985), Liltved gives a fascinating glimpse of the variability of endemic southern African *Cypraea* and describes and pictures all members of the Ovulidae and Triviidae known to inhabit this region. Table 1 lists important radular and anatomical characters of these families, showing that Cypraeidae and Ovulidae are closely related, as are the Velutinidae (more commonly known as Lamelliariidae) and Triviidae (including Triviinae and Eratoinae).

The volume begins with sections entitled, "foreword," "contents," "preface," "acknowledgements," "abbreviations," and "materials and methods." A 31-page introduction covers the following: external and internal morphology, with exquisite anatomical drawings; developmental biology and biogeography; higher systematics; generic subdivision; systematics of endemic southern African taxa; and predation. Species accounts form the body of this book — 50 pages on Cypraeidae, 52 on Ovulidae, 45 on Triviidae. Eighteen of the 65 *Cypraea* species recorded from southern African waters are discussed in detail, as are 44 ovulids, 26 *Trivia*, and 4 *Erato*. Tables 2 and 3 list all Cypraeacean and Velutinacean taxa known from this region, showing the first southern African record and the southernmost distributional limit. Two *Cypraea*, 4 ovulids, and 4 *Trivia* are treated and figured, but not identified as to species.

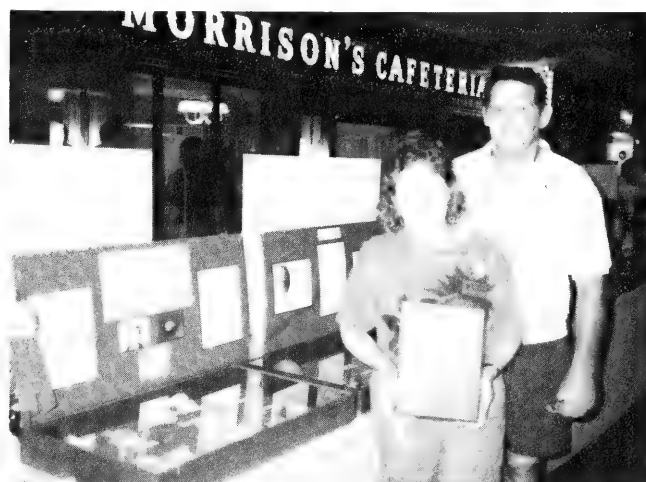
Based on current knowledge of the morphology of included species, the genus *Cypraea* is used for all members of the Cypraeidae. Several genera are recognized in the Ovulidae, and only the genera *Trivia* and *Erato* constitute the Triviidae. Three species of ovulids are transferred to different genera and nine specific names in Ovulidae are listed as synonyms. Greater interest in the Cypraeidae is reflected in the fact that living animals are known for all eighteen species except *C. cohenae*, *C. cruickshanki*, and *C. lisetae*, while the animals of many fewer species of Ovulidae and Triviidae are known.

Each species account includes data on the living animal, shell, natural history, distribution, and discussion. Differences between related species and variation within a species are indicated, and individual maps clearly show the range of each species. Dorsal, ventral, and lateral photos are provided of each *Cypraea* and many ovulid and *Trivia* species, but only dorsal and ventral views are shown for *Erato*.

Collectors of these popular mollusk families are sure to find this a book well worth obtaining. Seldom enough do we get to see and study the living mollusk, and in this volume we have both superb photography and excellent science. There are only a few, very minor, typographical errors, and while this reviewer would have preferred to have a more complete literature citation with the species accounts and to have had type specimens illustrated wherever possible, these absences do not detract from the outstanding quality and usefulness of this book. This volume is a tribute to the many collectors and scientists who have contributed information contained herein, and will serve to encourage others to make similar contributions to malacology.

\* American Museum of Natural History

## COA TROPHY WINNERS



Linda and Jim Brunner and their COA Trophy at the Gulf Coast Shell Show, in front of their winning exhibit which explored species names, "People, Places or Things."



Jean Offord, winner of the COA Award at the 1989 Keppel Bay Shell Show, in Rockhampton, Queensland, Australia, for her exhibit, "Shells of Keppel Bay."

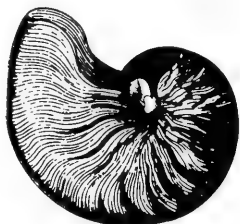
### Corinne Elizabeth Edwards (1905 — 1989)

A distinguished member of the conchological community, popularly known as the "little colonel," passed away on August 20, 1989, at the age of 83. Corinne Edwards, a former lieutenant colonel in the U.S. Air Force during World War II was active in several Florida shell clubs and served at times as editor of *Seafari*, *The Mollusk*, and the *Quarterly of the Miami Malacological Society*. She was best known for her informal teaching programs among the school children of Miami and for her many articles on shells, some of which were published under the pseudonym of Ed Wood. Corinne was born October 20, 1905, in Milton, Massachusetts, and after attending college, was a legal court reporter from 1927 to 1934. A fine tribute to her, with photographs, appeared in *The Mollusk*, (Greater Miami Shell Club), vol. 27, no. 9, p.3 (Sept. 1989).

— R.T.A.







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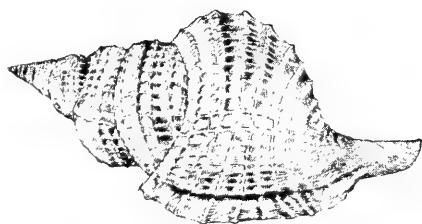
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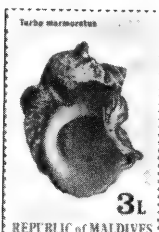


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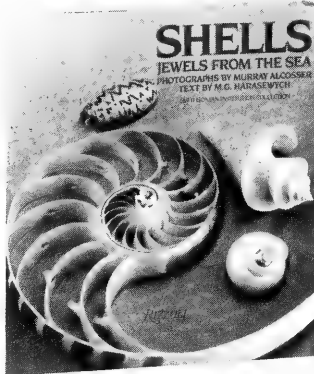
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QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

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MARCH 1990



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#### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January. **INDIVIDUAL** (per year) \$12.50; **FAMILY & CLUB** (receiving one AMERICAN CONCHOLOGIST) \$15.00; **WESTERN HEMISPHERE** (Air Mail Postage) \$20.00; **OVERSEAS** (Air Mail Postage) \$25.00. New members send check or money order to the **MEMBERSHIP CHAIRPERSON** Bobbie Houchin, 2644 Kings Highway, Louisville, KY 40205. Renewals are sent to the **TREASURER**. Back issues are available from Mrs. Houchin @ \$2.50.

**COVER:** Sharon Snyder of Central Florida Shell Club did this lovely and colorful rendering of three Panamic murex species: *Hexaplex princeps*, *Phyllonotus regius*, and an unusual yellow *Phyllonotus erythrostomus*.

**AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS.**

#### BOARD TALK.....

From our **Treasurer WALTER SAGE:** Thanks to all who have sent in their 1990 COA membership dues. At this writing, however, we still have just slightly under 400 memberships that have not been paid for 1990 — 348 domestic, 21 clubs, 22 foreign. I know that for most of you "unpaid members" this is an oversight — there is a reminder notice stamped on your envelope if we have not yet received your payment. Please check your records and send your membership to me as soon as possible. You don't want to miss any of the super issues that Editor Lynn Scheu is planning for the balance of 1990. Sending your check now will save COA the expense of a reminder letter in May.

#### PRESIDENT'S MESSAGE

Perhaps it's trite to write a message urging attendance at the 1990 COA Convention; maybe you're already tired of hearing about it. But the fact remains that the annual COA Convention is one of the most enjoyable events of the year for shell collectors of all kinds. Those of us who live in Florida have the option of attending any (or all) of several fine shell shows, where we may meet with other shellers, drool over shells, and generally enjoy the hobby; but even these weekend shows are no match for the non-stop fun of a COA Convention. We get to see friends we've seen only once a year and make new ones, talk about shells in a relaxed atmosphere, watch fine programs about shells (dreaming all the while about visiting that exotic place or owning that gorgeous shell), and have an opportunity to acquire some of them at the Dealers' Bourse.

Having just visited Melbourne (for the Astronaut Trail Shell Show), I'm especially enthusiastic about the Convention there. The committee is putting together some delightful events and we already have a list of interesting programs to choose from (feel free to join the list by writing to me or the Convention Committee). Melbourne is a pretty area, quiet and homey, without the frantic pace of a big city, yet close to lots of interesting attractions. Whether you're a "novice" shell collector, or well "into" the hobby, whether you're a "self-collector" or an armchair collector, whether you're a Floridian or a Yankee or a Westerner or a "foreign" visitor, you'll find the COA Convention a great vacation, a learning experience and a lot of just plain fun. Y'all come!

Peggy

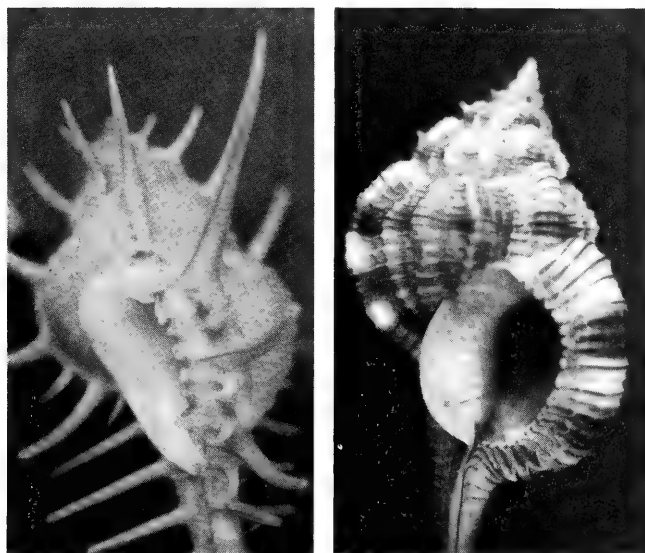


#### CORINNE EDWARDS AWARD

The Greater Miami Shell Club announces a new national shell show award, The Corinne E. Edwards National Memorial Award, in memory of a great and colorful figure of modern shelling. It is restricted to scientific entrants up to 15 years of age, and is intended to provide young people in conchology with recognition bearing the same national stature as the COA Grand Trophy and the du Pont Award. So far, nine clubs have elected to present the award.

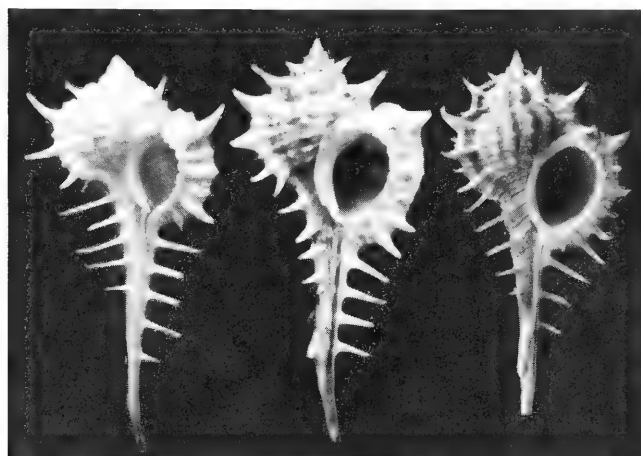
The first winner of the Corinne Edwards Award, at the Greater Miami Shell Show, is Melissa Hoffpauir, age 10, for her exhibit, "Self-Collected Shells of Bimini." Congratulations, Melissa!

**THIS WILL BE YOUR LAST ISSUE OF AMERICAN CONCHOLOGIST UNLESS YOU HAVE PAID YOUR 1990 DUES!**



photos by the author

Left: *Murex tribulus* Linné, showing tooth, Philippine Islands. Right: *Haustellum dentifer* (Watson), showing rugae. Punta Engano, Philippine Islands.



Left to Right: *Haustellum cabritii* (Bernardi), — 380' off Dania, Florida. *Haustellum ruthae* (Vokes), Gulf of California. *Haustellum elenensis* (Dall), Ecuador.

## WHAT EVER HAPPENED TO DEAR OLD MUREX?

by Emily H. Vokes

The muricine species in the western Atlantic that have a long straight siphonal canal, such as *messorius* Sowerby, almost invariably have been referred to *Murex* sensu stricto, but it now seems probably that a resemblance to that subgroup is due only to convergence. This latter phenomenon of two only distantly related forms coming to resemble each other as a result of evolutionary processes is apparently much more prevalent in the muricids than we have previously recognized.

In a recent work on the genus *Murex* in the Indo-west Pacific (Ponder & Vokes, 1988), done while I was a Visiting Curator at the Australian Museum in 1980, Winston Ponder and I critically examined the relationship between the many species that customarily have been referred to the genus *Murex* Linné 1758. The conclusion we reached was that many species previously referred to *Murex* s.s. are not to be so assigned.

In the Indo-Pacific region there are approximately forty Recent species that have been referred to *Murex* s.s. and/or to *Haustellum*. We showed that this number can be divided into two subgroups — those that have 12 (or more) rounded axial ribs on the first post-nuclear whorl [see fig. 1a], and those that have 9 angulate to spinose "proto-varices" on the first whorl [see fig. 1b]. (Please note that I am talking about the **post**-nuclear whorls. The nature of the protoconch itself, although extremely valuable for species determination, is worthless at the generic level.) In the first group, every fourth rib ultimately becomes a varix; in the second, every third "proto-varix" is enlarged to become a true varix. In both cases there are three varices per whorl, but in the first there are initially three intervarical nodes, in the second, two intervarical nodes.

The latter group, that with nine proto-varices, includes those species usually placed in *Murex* s.s. The first group, that with twelve rounded ribs, includes all of the species that generally have been referred to *Haustellum* (e.g.: *Haustellum wilsoni* D'Attilio & Old; *Murex tweedeanus* Macpherson; *Murex hirasei* Dautzenberg in Hirase; and *Murex haustellum* itself), plus several species that heretofore have been considered *Murex* sensu stricto (e.g.: *Murex sobrinus* Adams and *Murex rectirostris* Sowerby) in the Indo-Pacific, **AND ALL OF THE NEW WORLD SPECIES USUALLY REFERRED TO MUREX.**

In addition to the nine proto-varices vs. twelve ribs, species of *Haustellum* are characterized by an overall lack of varical spines, except perhaps a shoulder spine, and by a paucity of spines on the siphonal canal. It would appear that there are two only distantly related groups involved, one of which is *Murex* with an extremely spinose shell, and one of which is *Haustellum*, with a shell that varies from moderately spinose, as in *H. kiiensis* (Kira), to no spines at all. In *Murex* the color is usually monochromatic, overall cream to tan (a few species develop thin brown spiral lines), and invariably there is a more or less well-developed labral tooth. In *Haustellum* the shell usually has broad brown and white stripes, the aperture may be colored, and there is **never** a labral tooth, although there are frequently rugae on the often expanded labium (= columellar lip).

In the Old World there is a species mixture of approximately 75% *Murex* sensu stricto to 25% *Haustellum*; but in the New World all species are to be referred to *Haustellum*. In the New World there are species that are so spinose as to seem referable to *Murex* (e.g., *H. cabritii*), in the western Atlantic; *H. elenensis* and *H. ruthae*, in the eastern Pacific), but on all other criteria they are descendants of the *Haustellum* line and must represent the ultimate in convergence.

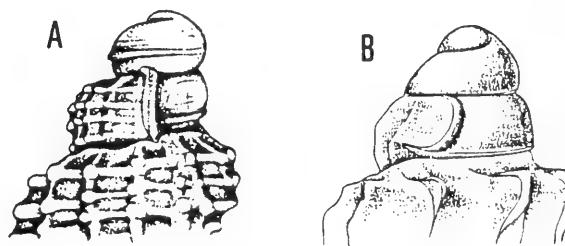
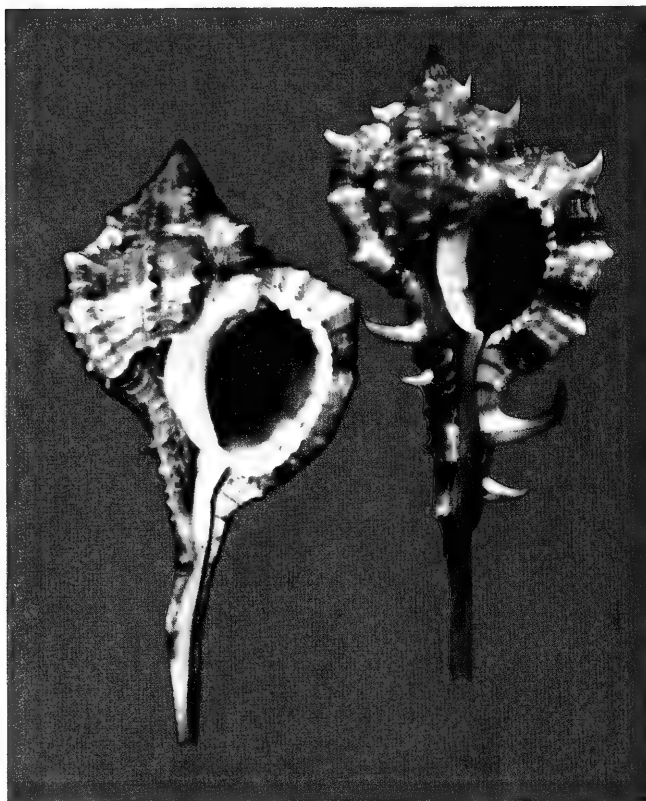


Figure 1a, *Haustellum sobrinus* (Adams), Kii, Japan; 1b, *Murex tribulus* Linné, New Caledonia (from Ponder and Vokes, 1988, figs. 79B, 73B respectively).





Left: *Haustellum garciai* (Petuch), 90' off Pta. Patuca, Honduras.  
Right: *Haustellum messorius* (Sowerby), Barbados.

To understand how this convergence has taken place it is necessary to look briefly at the fossil history of the subfamily as a whole. As far as we know today, the oldest genus in the New World group of *Chicoreus*, *Haustellum*, *Siratus*, and *Phyllonotus*, is *Phyllonotus*, which first occurs in the Eocene. (There is a good Eocene species of *Phyllonotus* now known, although not yet described.) *Phyllonotus* presumably gave rise to *Siratus* and *Chicoreus*, and sometime in the Oligocene *Siratus* gave rise to *Haustellum*; by the lower Miocene all four are represented. Somehow the *Haustellum* line made its way to the Old World, probably via Europe into the Indo-Pacific region, rather than via the eastern Pacific (I think that the present eastern Pacific members of the line represent a second wave of migration through the Panamic passage). The *Siratus* group apparently never reached the eastern Pacific, although from all evidence it somehow reached the western Pacific. If this is all a bit confusing, it is because we do not know much about these migrations.

Although the geological history of *Murex* s.s. is very poorly known, it is presumed to have been derived from the genus *Hexaplex* (but who knows?), probably in the Oligocene, probably in the European area, from whence it moved into the Indo-Pacific region. As far as we know it has always been confined to the Old World.

The *Haustellum* line in the New World seems to have begun with *H. messorius* which, so far as we can determine, was independently derived from the *Chicoreus* (*Siratus*) group. This conclusion is inevitable when one studies the Mio-Pliocene muricids of the Dominican Republic (Vokes, 1989a). There are two distinct species present — *H. messorius* and *Chicoreus* (*Siratus*) *domingensis* (Sowerby) — that are so nearly alike in ornamentation it is difficult to separate them.

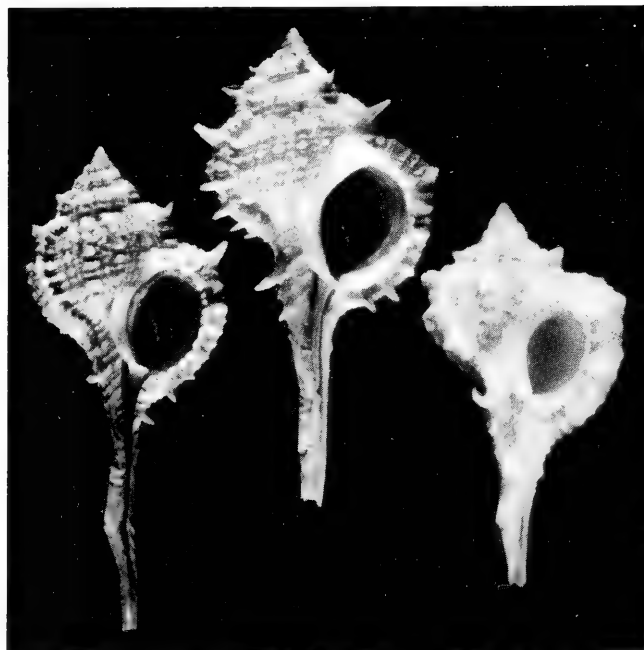
In addition to the similarity of the two early forms, the color pattern of the living *H. messorius* with its wide brown stripes and generally dark color is much more akin to that of the *Siratus* lineage than it is to the Indo-Pacific members of *Murex* s.s. Besides the presence of the labral tooth in *Murex* and its corresponding lack in *Haustellum*,

the other factor separating *Murex* and *Haustellum* is the almost invariable presence of rugae on the columellar lip of the latter. Although not all the species of *Haustellum* still retain these rugae, some having lost them secondarily, none of the *Murex* have them and the presence of rugae is a sure indication of a *Haustellum* relationship. These rugae are also invariably present in the *Siratus* group. In the interval since the Miocene, many of the descendant species have lost the labial rugae, although the majority do still have at least vestiges of them.

In both the western Atlantic and eastern Pacific lines there has been a move to increased spinosity — obviously spines have survival value. In the Recent faunas, therefore, there are extremely spinose members on both sides of tropical America. This same trend is also seen in *Siratus*; there are species living today in the western Atlantic that are as spinose, except on the canal, as any Indo-Pacific *Murex* [for example, *C. (S.) formosus* (Sowerby) and *C. (S.) articulatus* (Reeve)].

All of this discussion builds up to a philosophical dilemma. Should *Haustellum* be considered a subgenus of *Murex* or of *Chicoreus*, as is *Siratus*? Is it a more realistic solution to give *Haustellum* generic status, as is done in Ponder and Vokes (1988)? The best answer would seem to be to admit *Haustellum* as a full genus in its own right, one that is somewhat more distantly related to *Siratus* than are *Chicoreus* and *Phyllonotus* (I place the three latter together as subgenera under the oldest name — not the oldest form — which is *Chicoreus*), all of which are characterized by deflected siphonal canals in contrast to the straight canal of *Haustellum*.

In papers that I had in press (Vokes, 1988, 1989a) before the publication of Ponder and Vokes, I hedged a bit and referred species to *Murex* (*Haustellum*) in order to give the reader breathing room. Without documentation of the rationale for this rather dramatic shift, I felt that a bit of scientific weaseling was in order. However, now that the detailed study is available there is no reason not to plunge right in and say it — with one possible exception\*, **THERE ARE NO SPECIES OF MUREX S. S. IN THE NEW WORLD!**



Left to Right: *Haustellum woodringi* (Clench & Pérez Farfante), Kingston, Jamaica. *Haustellum samui* (Petuch), 200', Porto Belo, Panama. *Haustellum gustaviensis* (Nowell-Usticke), Virgin Islands.

\*This one exception is a species recently named *Murex surinamensis* by Okutani (1982). Based upon material taken by a Japanese fishing boat operating off Suriname, this species seems to me to be a possible ringer (it is very similar to the Australian species named *M. queenlandicus* Ponder and Vokes). The opportunity for mixed locality data is certainly present and until more specimens are taken to confirm the American origins of this species, I will withhold judgement.

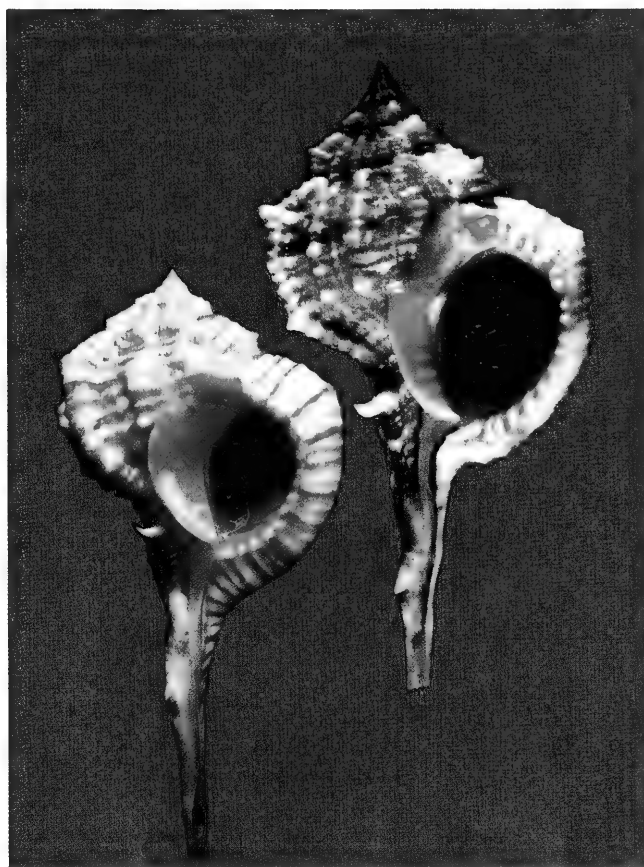
So, what do we have? We have somewhere between nine and twenty-five species of *Haustellum* living in the waters of the western Atlantic, plus another four or five in the eastern Pacific. Why such a vague number? It depends on which of the multitude of names one accepts as valid species, *versus* subspecies, forms, or just plain synonyms. Here is a list of all the names under consideration, arranged as I see them. As always, this is one (wo)man's opinion and is in no way legal and/or binding.

#### WESTERN ATLANTIC SPECIES OF *HAUSTELLUM*

- H. messorius* (Sowerby, 1841) — Lower Miocene-Recent.  
*nigrescens* (Sowerby, 1841) — Recent.  
*funiculatus* (Reeve, 1845) (non *M. funiculatus* Schlotheim, 1820) — Recent.  
*woodringi* (Clench and Pérez Farfante, 1945) — Recent.  
*gustaviensis* (Nowell-Usticke, 1969) — Recent.  
*garciai* (Petuch, 1987) — Recent.  
*samui* (Petuch, 1987) — Recent.  
*H. chrysostoma* (Sowerby, 1834) — Pliocene-Recent.  
*bellus* (Reeve, 1845) — Recent.  
*H. rubidus* — (Baker, 1897) Pliocene-Recent.  
*marcoensis* (Sowerby, 1900) — Recent.  
*citrinus* (Smith, 1940) — Recent.  
*delicatus* (Smith, 1940) — Recent.  
*H. anniae* (Smith, 1940) — Pleistocene-Recent.  
*sallasi* (Rehder & Abbott, 1951) — Recent.  
*bellegladeensis* (Vokes, 1963) — Pleistocene-Recent.  
*lindajoyceae* (Petuch, 1987) — Recent.  
*H. donmoorei* (Bullis, 1964) — Pliocene-Recent.  
*maculatus* (Verrill, 1950) (non *M. maculatus* Reeve, 1845) — Recent.  
*H. olsoni* — (Vokes, 1967) Pleistocene-Recent.  
*H. cabritii* (Bernardi, 1859) — Pleistocene-Recent.  
*H. tryoni* (Hidalgo in Tryon, 1880) — Recent.  
*sunderlandi* (Petuch, 1987) — Recent.  
*H. blakeanus* (Vokes, 1967) — Recent.



Left to Right: *Haustellum anniae* (Smith), 45 fms, off Sombrero Key, FL. *Haustellum lindajoyceae* (Petuch), 180', Anna Maria Key, FL. *Haustellum sallasi* (Rehder & Abbott), Isla Contoy, Mexico. *Haustellum bellegladeensis* (Vokes), Pleistocene.



Left: *Haustellum bellus* (Reeve), 100', Curaçao. Right: *Haustellum chrysostoma* (Sowerby), 20', Pidgeon Point, Tobago.

#### EASTERN PACIFIC SPECIES OF *HAUSTELLUM*

- H. recurvirostris* (Broderip, 1833) — Pliocene-Recent.  
*H. lividus* (Carpenter, 1857) — Recent.  
*H. elenensis* (Dall, 1909) — Recent.  
*H. tricornis* (Berry, 1960) — Recent.  
*H. ruthae* (Vokes, 1988) — Pliocene-Recent.

Of all of these species, *H. messorius* is undoubtedly the most confusing and misunderstood. Many the day I have cursed the "messorius" complex. A multitude of names have been proposed for this "species." The first synonym (only slightly after *messorius* itself, fig. 113 in contrast to fig. 93, in fact) is *H. nigrescens*, said to be from Xipixapi, Colombia [Xipixapi is now in Ecuador, but in 1841 it was still in Gran Colombia], which is on the Pacific side of South America. One's immediate reaction is to think it should be a synonym of *H. recurvirostris*, but examination of the original illustration leaves no doubt that it is the small, dark form of *H. messorius* that was later named *Murex woodringi* Clench and Pérez Farfante. Unfortunately, in the British Museum the syntypes of this species do not include the figured specimen, and what is worse, they are all examples of the more spinose form named as *Murex funiculatus* Reeve. But *funiculatus* is preoccupied, so we are saved that complication, at least.

Therefore, if one wishes to accept the small, dark form of *messorius*, which usually is found in extremely shallow water — in fact, one hot day at Kingston, Jamaica, we found them crawling on rocks out of water that was hot to touch — then the correct name would be *H. nigrescens* (Sowerby). The more spinose form, that

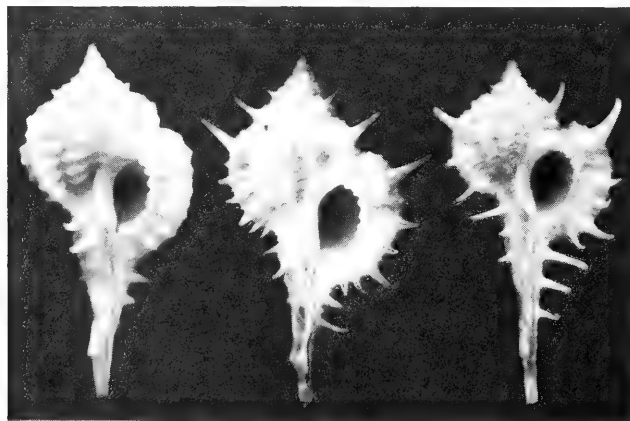
which has recently also been named *samui* Petuch, seems to be confined to the southern Caribbean. In the Tulane Collections, we have several hundred examples taken from material that was dredged to build a refinery on the Atlantic coast of Panama. I figured several of these (Vokes, 1967, pl.2) to show the range of variation from a single locality.

The form that was named *gustaviensis* Nowell-Usticke is a more triangular-shaped shell that is found in the Virgin Islands. A large, light-colored variety was recently named *garciai* Petuch. In my opinion all of these variations are just that. The species *H. messorius* may be large or small, light-colored or dark; it may be spinose or not spinose. No doubt, ecology plays a large part in the development of the variations but we just don't know enough about the living habits of the animal to say.

The only species that may be confused with *messorius* is *H. chrysostoma* (Sowerby). Although most specimens are fairly easy to separate, there are those that will drive you wild. I have recently published a short paper discussing this problem (Vokes, 1989b) and in it I note that, in general, *H. chrysostoma* is smoother, has a more appressed suture, one to two rows of intervarical nodes, no shoulder spine, a more inflated body whorl and, hence, a larger aperture, with a more expanded parietal shield that is partially yellow in color. In general, *H. messorius* is a smaller species, with a more nodulose ornamentation, two to three rows of intervarical nodes, and a short spine at the shoulder. The form named *bellus* Reeve is intermediate between *messorius* and *chrysostoma* in that it is narrow and has brown stripes, but it also has the more expanded, yellow-colored parietal shield. Whether it is better placed with *messorius* than *chrysostoma* is a matter of personal opinion. The main reason I vote for *chrysostoma* is the similarity of true *bellus* to the Dutch Antillean form called *bellus* by most of us, which is unmistakably more closely allied with true *chrysostoma*.

There is little problem with *H. rubidus*, even though it is often some other color than reddish, as the name *rubidus* would imply. Although sometimes confused with the *H. anniae* complex, it is easily distinguished by the presence of rugae on the inner lip, which are lacking in the latter group.

This brings us to another of the more troubling species-complexes. The oldest name of the group was based upon a Pleistocene fossil from southern Florida. True *anniae* is a rather "emaciated" looking shell with long spines. I named a member of this complex, also for a Pleistocene fossil from southern Florida, *H. bellegladeensis*. The latter is very inflated with large intervarical nodes and short spines. It looks like *anniae* after it had been on a three-week Caribbean cruise. The common Recent form is an inflated shell with almost no spines that was named *sallasi* Rehder and Abbott. Finally, the most recently named of the group is a small, spiny shell, in-



Left to right: *Haustellum rubidus* (Baker), 15', off Naples. *Haustellum olssoni* (Vokes), 110', Honduras. *Haustellum donmoorei* (Bullis), 25 fms. off Suriname.



photos by Kevan Sunderland

Left: *Haustellum tryoni* (Hidalgo in Tryon), 120 fms., Key West. Right: *Haustellum sunderlandi* (Petuch), 35 meters off Cabo La Vela, Goajira Peninsula, Colombia. Paratype.

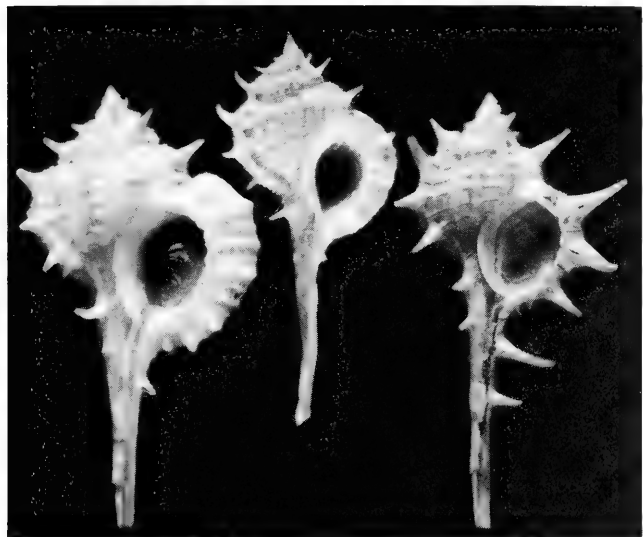
distinguishable in any way from typical *anniae*, which was named *lindajoyceae* Petuch.

Are all of these taxa really members of the same species, as they were treated by Radwin and D'Attilio (1976, p.61)? I hate to say so, but the answer is probably yes. Certainly, when one gets a whole bunch of specimens from the Recent waters off Florida, and tries to sort them into the various forms, it becomes an exercise in frustration. The so-called fossil forms occur right there along with the so-called Recent forms. If they are fat and have no spines then they are "*sallasi*," if they are fat and have spines then they are "*bellegladeensis*," if they are skinny and spiny they are "*anniae*," and if they are small and spiny they are "*lindajoyceae*."

Among the few species to give us almost no problems is *H. donmoorei*, one of the more spiny members of the genus. This species is easily identifiable by the keeled protoconch (assuming that you have a protoconch). Likewise, *H. olssoni* is moderately easy to recognize. It is also spiny, but not as spiny as *donmoorei* and it does not have a keeled protoconch.

Two deepwater species that were confused by Clench and Pérez Farfante (1945, p.2) are *H. tryoni* and *H. blakeanus*. What Clench and Pérez Farfante figured for *tryoni* is really *blakeanus*, and the two may be distinguished by the more numerous intervarical ridges in *tryoni* and the more spinose appearance of *blakeanus*. In truth, I have never seen any specimens of *blakeanus* except the type material, but *tryoni* is moderately common in deep dredgings. Typical *tryoni* has three faint brown spiral lines; a form with more numerous brown spiral lines was named *H. sunderlandi* (Petuch).

This brings us to the last Caribbean species, one that no one has any problem identifying as to species — *H. cabritii*. True, the species is no problem, but what about the genus? Surely this spinose, monochromatic shell, with its smooth inner lip, must be referred to *Murex* s.s. No, I don't think so. The early whorls are exactly like those of the other *Haustellum* species and there is no trace of a labral tooth or any secondary spines that mark the true *Murex*. The only answer is that this is simply the ultimate end of the movement toward losing rugae, as we see in the *anniae* group, toward an increase in spinosity, as we see in *donmoorei* and *olssoni*, and toward the monochromatic color that we see in *tryoni* and *blakeanus*.



Left to Right: *Haustellum lividus* (Carpenter), Mazatlan, Mexico. *Haustellum recurvirostris* (Broderip), 10', Pedro Gonzales Island, Panama (Pacific). *Haustellum tricornis* (Berry), Isla Cedros, Baja California, Mexico.

On the Pacific coast we have far fewer species to worry about — but they do cause some of the same worries that we see with the Atlantic species. The most widespread is also the earliest named, *H. recurvirostris*. This Pacific cognate of the Atlantic *H. messorius* is found from the Gulf of California to southern Ecuador, the only species with that extensive a range. It may be distinguished from all its congeners by the deep excavation behind the varices and the strongly rugose inner lip. At the more northern end of its range it occurs with *H. lividus*. The latter is much like *H. recurvirostris* but has very faint, if any, labial rugae and has non-excavated varices. It looks very much like the Atlantic *messorius* var. *funiculatus/samui*, but also differs from that form in lacking the strongly rugose inner lip.

Occurring only in the Baja California area is the more spinose, lighter-colored *H. tricornis*. Although most examples of *tricornis* are obviously different from *lividus*, there are many shells that intergrade, and it is hard to be sure where one stops and the other starts. The typical spinose form of *tricornis* comes from the Cedros Island area of Baja California, that is, from the Pacific Ocean side. The intergrading forms are found in the Gulf of California, together with typical *lividus*, and we may be seeing speciation in action. As long as the two forms are living together in the Gulf of California, they are still mingling their gene pool (a polite way of saying they are interbreeding). But if something were to separate the two bodies of water, *tricornis* would soon stabilize as a distinct species.

This is what has already taken place with the last two species on the Pacific coast. Once upon a time, back in the Pliocene, a coarsely ornamented, spinose species lived from Ecuador to the Gulf of California. But over time the two extremes of the range were separated by something — ? cold currents, or the like. The southern one has evolved into the species that we know as *H. elenensis*, but the northern one stayed the same. For years, people called them both by that name, and only recently (Vokes, 1988) did I show that the two are different species, naming the Gulf of California one *H. ruthae* after the late Ruth Purdy. With these two species we have the same problem that we have with *cabritii*. They are extremely spinose and have non-rugose inner lips. But here we can see the steps in the change better. In *ruthae* the color pattern is very like that of the Atlantic *messorius* with the typical three brown spiral bands. The more southern *elenensis* has mostly lost the wide brown bands, but still has the fine spiral lines of the typical *Haustellum* species. So, although

these two species are somewhat atypical with their spinose shells, if one compares them to the Atlantic *donmoorei*, for example, they are not too hard to accept.

Now it is time for everyone to go and change their shell labels. I know that collectors swear at the people who cause them so much work and who seem to be constantly changing their minds about what name goes on what shell. But this must be viewed as progress in science. If we knew all the answers, then what would be the challenge in collecting shells? If one wishes to have a nice, unchanging set of labels, then perhaps it would be better to collect stamps. When you are dealing with living animals that are a product of the forces of evolution and environment, then there is going to be a constantly expanding body of knowledge concerning these animals and that means changing labels from time to time. Would you have it any other way?

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#### BROWARD SHOW CANCELLED

Members of the Broward Shell Club have found it necessary to cancel their 1990 Shell Show, scheduled for July 5-7. So sorry, Broward! We'll miss you this year!

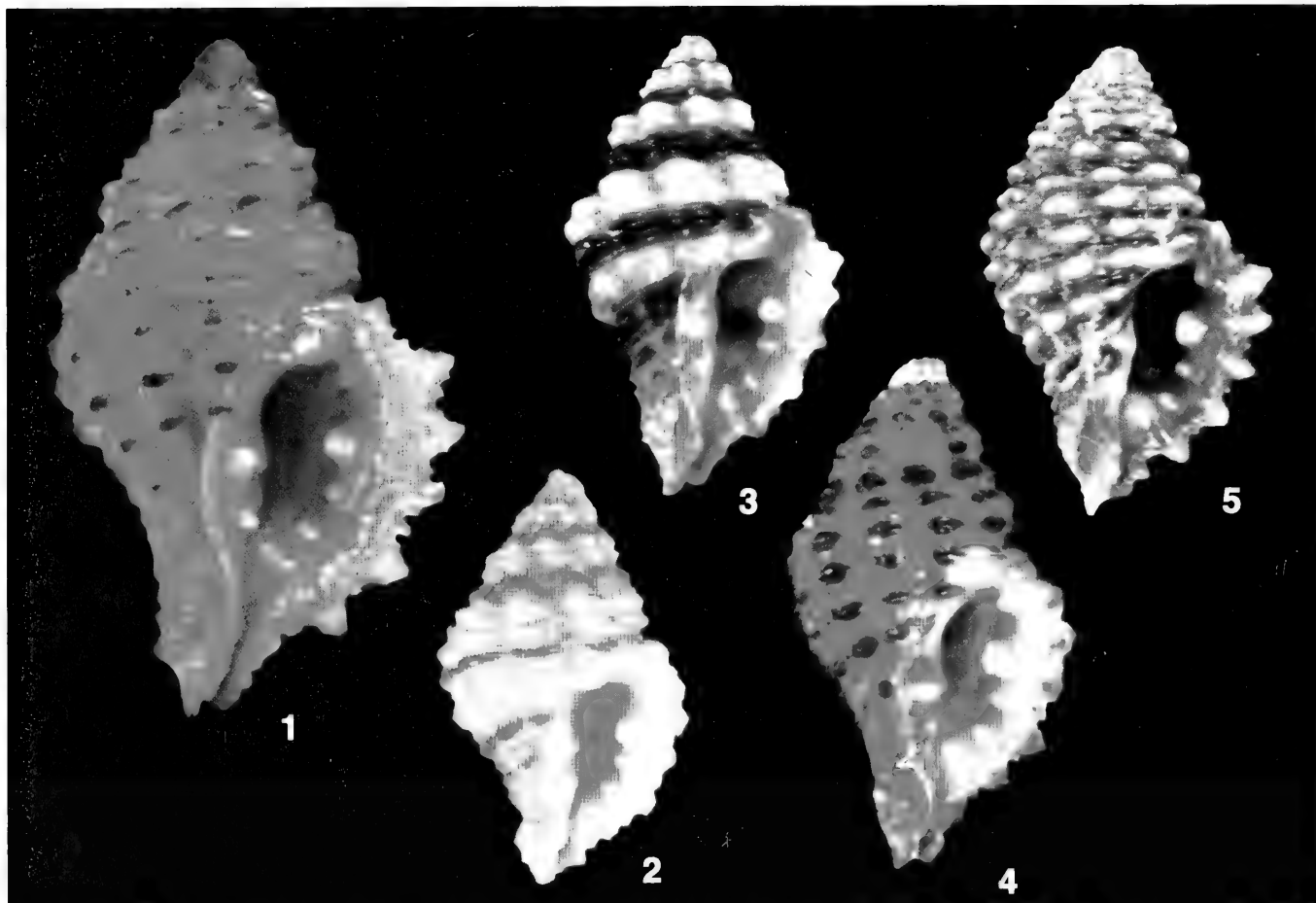
#### NORTHWEST FLORIDA SPECIES LIST COMPLETE

The Gulf Coast Shell Club has compiled a species list of the shells found in the onshore and offshore waters of the Florida Panhandle, and have published this list in their club newsletter, *Shell and Tell*. We congratulate the members of the Gulf Coast Shell Club on the conclusion of this ambitious project and thank them for their contribution to the study of mollusks.

*A STUDY of the manner in which triton shells are prepared as a horn among various cultures was once made by Harvard conchologist, Edward S. Morse. He found that half of the world filed off the narrow apex end to form a blow hole, while the rest of the world, including the people in the West Indies, Africa and the South Seas, cut a round hole in the side of the spire.*

from R. Tucker Abbott's new book, *Shells*.





1. *Muricopsis (Risomurex) schrammi* (Crosse) French Antilles (Guadeloupe or Martinique), R. Houart coll., 18.6mm.
2. *M. (R.) schrammi* (Crosse) holotype MNHN, 8.8mm.
3. *M. (R.) roseus* (Reeve) Antigua, R. Houart coll., 12mm.
4. *M. (R.) withrowi* Vokes & Houart, Curacao, R. Houart coll., 13.5mm.
5. *M. (R.) deformis* (Reeve) Roatan, R. Houart coll., 12.2mm.

## On the Rediscovery of *Muricopsis (Risomurex) schrammi* (Crosse, 1863)

by Roland Houart

*Muricopsis (Risomurex) schrammi* was described from Guadeloupe, from a single specimen. The holotype is in the Museum Nationale d'Histoire Naturelle, Paris, and measures 8.8mm. Vokes & Houart, in their evaluation of the taxa of *Muricopsis* and *Risomurex*, figured the holotype (1986, pl. 1, fig. 1), but at that time, no other specimens being known, the authors suspected that the type specimen was only an aberrant example of *Muricopsis roseus* (Reeve, 1846) with narrower brown spiral cords.

Recently I had the opportunity to obtain an unusual specimen from the French Antilles and, undoubtedly, it is, at last, another example of *M. schrammi*. The specimen was found by someone who collected in both Guadeloupe and Martinique, but does not remember from which of the two localities it came.

The shell of *M. schrammi* may be distinguished from that of *M. (R.) roseus* (Reeve, 1846) by its larger size, narrower spiral cords, and more numerous intermediate threads. The color pattern, a quite useful separation criterion for species of *Risomurex*, is a light background with 3 large dark brown to almost black bands on the last whorl in *M. roseus*, but with 6 narrow brown bands on the spiral cords in *M. schrammi*.

*Muricopsis (Risomurex) deformis* (Reeve, 1846) differs by its smaller sized shell with broader spiral cords, fewer intermediate threads, and coloration having a dark brown background with white, cream or light pink nodes where the spiral cords cross the axial ribs, with a bluish white aperture surrounded with light brown.

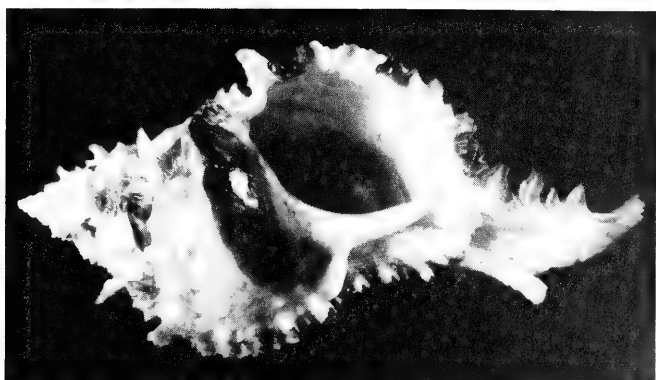
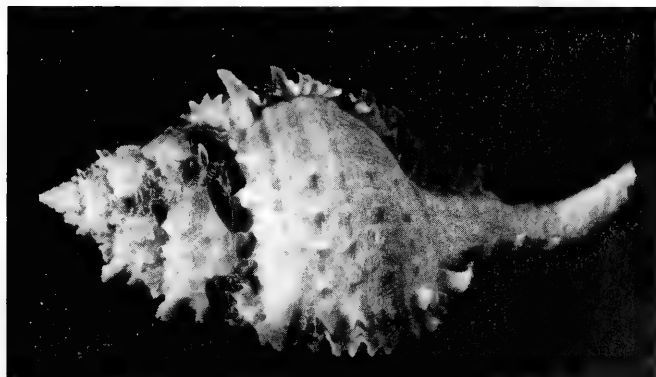
*Muricopsis (Risomurex) withrowi* Vokes & Houart, 1986 is the most closely related species, but it differs in having a shell with broader and more rounded spiral cords, fewer intermediate threads, and darker coloration, with broad dark blotches where the major spiral cords cross the axial ribs and darker colored intermediate threads.

It would be interesting to have more material of *M. schrammi* to compare with above species, but it probably lives in a restricted area, as it has been unrecorded since its description. All references to it are based on the misidentification of another species.

The three comparable species are quite common and recorded from several localities (see Vokes & Houart, 1986 for the geographical distribution and for other species of the subgenus).

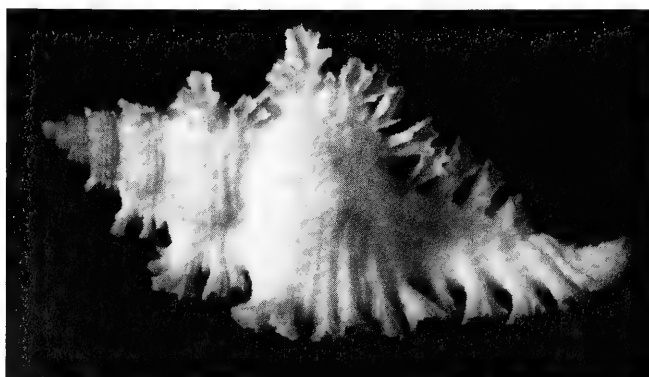
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photos by the author

*Phyllonotus eversoni* D'Attilio, Myers & Shasky from Cocos Island (Costa Rica), 137.5mm. AbS 88-058.



*Chicoreus fosterorum* Houart from South Africa, 46.5mm. AbS. 86-083.

## TWO NEW MURICIDS

by C. Glass

Two new and interesting members of the *Murex* family were fairly recently named, both honoring members of the COA. *Phyllonotus eversoni* D'Attilio, Myers & Shasky, 1987 was named for Gene Everson in *The Nautilus*, Vol. 101, No.4, pp. 162-165. It had been pictured as a new but undescribed species of "*Chicoreus (Phyllonotus)*," with a beautiful color plate, in Steve Long's now defunct *Shells and Sea Life*, in an article by Emily Vokes ("Comparison of the Muricidae of the eastern Pacific and western Atlantic with cognate species," Vol. 16, No.11, pp. 210-215). In November of 1987 it finally got christened.

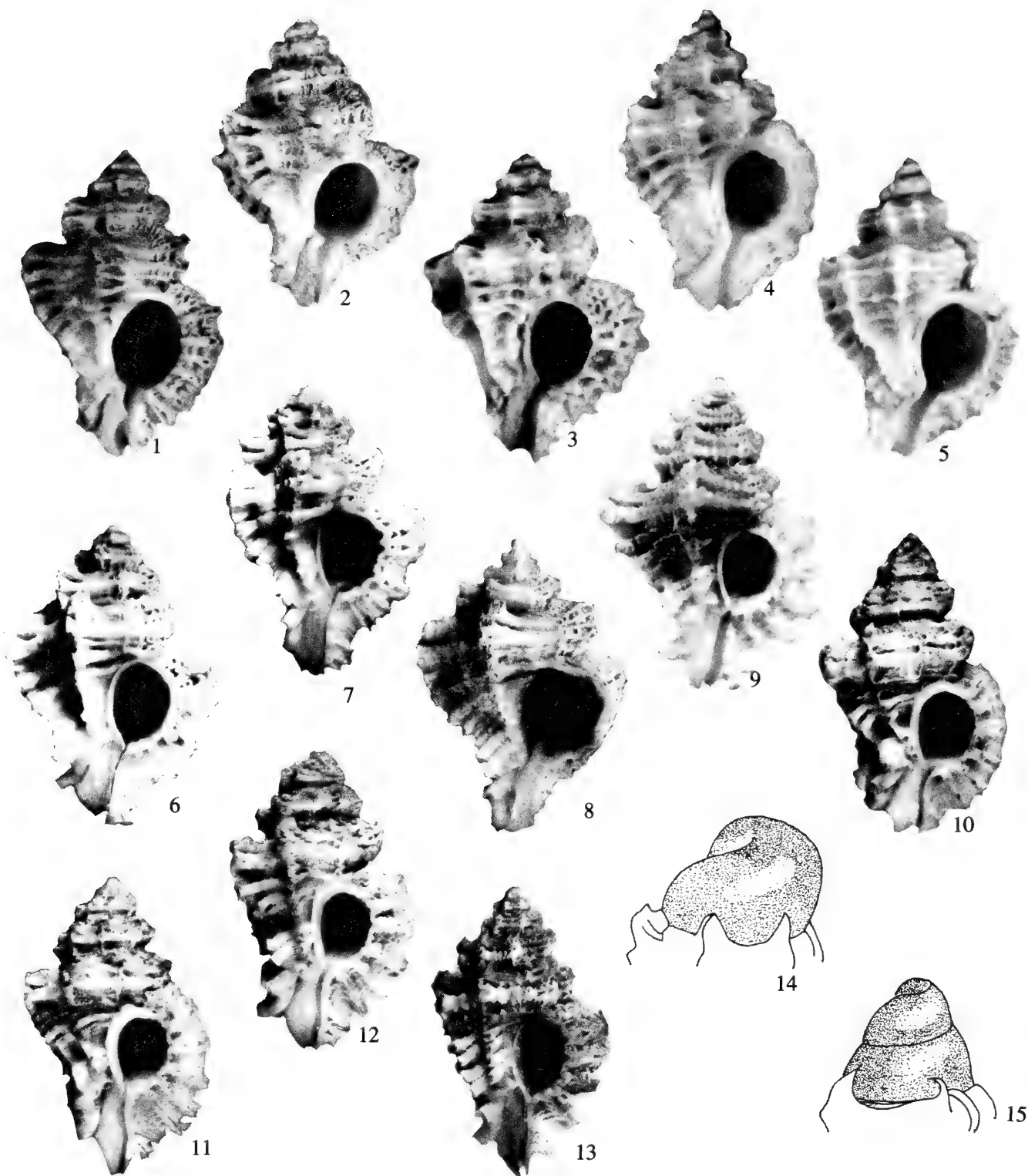
*Phyllonotus eversoni* is from Cocos Island, Costa Rica in the eastern Pacific. The specimens known to date have been netted in 66 meters, about 200 feet. It is compared to *P. regius* and *P. erythrostomus* from which it differs, according to the authors, in having three varices as opposed to six or seven in the case of *P. regius* and four to five for *P. erythrostomus*. The most striking characters of the new species are its size and coloring, a deep pink to fleshy tan with darker brown markings at the shoulder, along the lip and especially the parietal callus; the columella is a deep pink. The specimen pictured here, in the Abbey Specimen Shells collection, is 137.5mm long.

A few years ago we received a couple of *Murex* shells from our excellent contact in South Africa and there was no question but that it was a new, undescribed species, more like some small *Chicoreus* from the Philippines than anything previously known from Africa. We sent two shells to Roland Houart in Belgium, a specialist in the genus *Chicoreus* and told him he could use one as holotype and to return the other to us. Subsequently, he chose to name it in honor of the author's partner, Robert Foster, an avid and most discerning collector of and specialist in *Murex*, but since there was already a

*Naquetia fosteri* D'Attilio & Hertz named for Bob, and since Houart considers *Naquetia* a subgenus of *Chicoreus*, Houart used the plural: *fosterorum* to include Bob's daughter, Debby, in the dedication. Thus, in 1989, the new species was named *Chicoreus fosterorum* Houart, for Robert Foster and "his daughters" (the plural, "daughters," was in error) in *The Veliger*, Vol.32, No.1, pp.60-63.

The shell pictured here, a paratype, in the Abbey Specimen Shell collection, is 46.5mm long and pure white except, surprisingly, for the very distinct bulbous protoconch and first three or four spire whorls, which are pinkish orange. It was collected in 50 meters on Aliwal Shoal of the south coast of Natal. The author places his new species in what he calls the *Chicoreus aculeatus* group, and compares it to *C. cloveri*, *C. nobilis* and *C. ryukyuensis*. Houart states it differs from *C. cloveri* by *cloveri*'s smaller size and much smaller protoconch, less frondose spines, different ornamentation on the siphonal canal, larger anal notch and recurved and thickened columellar lip; it differs from *C. nobilis* again by the protoconch which in *C. nobilis* is conical and multispiral, and also by the broader anal notch and different ornamentation of the varices and siphonal canal of that species, consisting of fewer and longer spines; and it differs from *C. ryukyuensis* which has less frondose spines, a comparatively smaller protoconch with different terminal varix, a broader and larger anal notch, and more ovate aperture. Houart also compares it to *C. rossiteri* and *C. crosnieri*, from both of which he states it differs by the very different protoconch.

*Phyllonotus eversoni* and *Chicoreus fosterorum*, members of distinct genera, differ in another, more unusual way. *P. eversoni* has a good shell for the holotype that is recognizable as the species it is supposed to represent. In the case of *C. fosterorum*, a bone of a shell that would certainly be of no help whatsoever to future students of the genus or species ended up being designated the holotype.



Figures 1-8: *Favartia cyclostoma* (Sowerby, 1841.)

1. *Favartia cyclostoma* (Sowerby), lectotype, BMNH1982158, 25.1mm.
2. *Favartia cyclostoma* (Sowerby), paralectotype, BMNH 1982158, 24mm.
3. *Favartia cyclostoma* (Sowerby), paralectotype, BMNH 197463, 19.8mm.
4. *Murex nucula* Reeve, syntype BMNH 197487, 16.5mm.
5. *Murex nucula* Reeve, syntype BMNH 197487, 22mm.
6. *F. cyclostoma* (Sowerby), Jeddah, Saudi Arabia, Red Sea, R. Isaacs coll., 16.6mm.
7. *F. cyclostoma* (Sowerby), Jeddah, Saudi Arabia, Red Sea, R. Houart coll., 20.5mm.
8. *F. cyclostoma* (Sowerby), Jeddah, Saudi Arabia, Red Sea, R. Houart coll., 12.5mm.

Figure 9. *Favartia rosamiae* D'Attilio & Myers, Okinawa, R. Houart coll., 16mm.

Figures 10-13: *Favartia sykesi* (Preston, 1904).

10. *F. sykesi* (Preston), syntype, BMNH 1905.2.8.7, 20.5mm.
11. *F. sykesi* (Preston), syntype, BMNH 1904.5.11.11, 21mm.
12. *F. sykesi* (Preston), syntype, BMNH 1904.5.11.12, 20mm.
13. *F. sykesi* (Preston), Trincomalee, Sri Lanka, R. Isaacs coll., 15.6mm.

Figures 14-15: protoconchs (scale bars 0.5mm).

14. Protoconch of *F. cyclostoma* from the Red Sea (specimen illustrated fig. 8).
15. Protoconch of *F. rosamiae* from Papua New Guinea, R. Houart coll.

## On the rehabilitation of *Favartia sykesi* (Preston, 1904), and comments on two related species

by Roland Houart

The genus *Favartia* Jousseaume, 1880 is certainly one of the most difficult muricopsine genera occurring in the Indo-Pacific. There are at least 25 to 30 species, many of these contested. It is possible to separate certain ones into groups of related or similar species. One of these "groups" consists of *Favartia cyclostoma* (Sowerby, 1841), *F. sykesi* (Preston, 1904) and *F. rosamiae* D'Attilio & Myers, 1985. In a recent paper, D'Attilio & Myers (1984) synonymized both *M. nucula* and *M. sykesi* with *M. cyclostoma*. They designated and illustrated a lectotype for *Murex cyclostoma* Sowerby, 1841, and illustrated a syntype of *Murex nucula* Reeve, 1845. The purpose of the present paper is to separate *F. cyclostoma* and *F. sykesi*, often synonymized, and to compare *F. rosamiae* with the true *F. sykesi*.

### *Favartia (Favartia) cyclostoma* (Sowerby, 1841) Figs. 1-8, 14.

- 1841 *Murex cyclostoma* Sowerby: pl. 194, fig. 95; 1841b: 146.  
1845 *Murex nucula* Reeve 1845: pl. 29, fig. 131.  
1976 *Favartia cyclostoma*; Fair: 35, pl. 20, fig. 300 (paralectotype).  
1984 *Favartia cyclostoma*; D'Attilio & Myers: figs. 1, 2-3 (lectotype), 9-10, 11-12.  
1984 *Murex nucula*; D'Attilio & Myers: figs. 4-5 (syntype).  
1985 *Favartia cyclostoma*; Vokes: 32, fig. 19 (lectotype), fig. 18.  
1985 *Murex nucula* Vokes: 32, fig. 19 (syntype).

*Murex nucula* Reeve, 1845 has been synonymized with *Favartia cyclostoma*. The two syntypes of *M. nucula*, here figured (figs. 4, 5), are so beachworn that there is almost no trace of any sculpture, although when comparing both specimens with *F. cyclostoma* one may note the similarity. The poor state of the syntypes allowing no better comparisons, and the similarity being very evident, that name is best synonymized with *F. cyclostoma*.

The illustrations of *F. cyclostoma* in Radwin & D'Attilio (1976: pl. 24, fig. 11), Vokes (1978: pl. 7, fig. 5) and Drivas & Jay (1988: pl. 21, fig. 6) probably represent specimens of *F. sykesi*. Both *F. cyclostoma* and *F. sykesi* are sympatric in the western Indian Ocean; however, *F. cyclostoma* is known to be endemic to that same region, and *F. sykesi* is probably found throughout the Indian Ocean.

The endemism of *F. cyclostoma* is due to its non-planktotrophic larval development, as can be seen by its paucispiral protoconch whorls (fig. 14).

### *Favartia (Favartia) sykesi* (Preston, 1904) Figs. 10-13.

- 1904 *Murex sykesi* Preston: 76, pl. 6, figs. 7, 8.  
1976 *Favartia sykesi*; Fair: 80, pl. 20, fig. 293 (syntype).  
1976 *Favartia cyclostoma* (Sowerby); Radwin & D'Attilio: 147, pl. 24, fig. 11.  
1978 *Favartia peasei* (Tryon); Cernohorsky: 67, pl. 19, fig. 3.  
1978 *Favartia cyclostoma* (Sowerby); Vokes: 406, pl. 7, fig. 5.  
1980 *Favartia cyclostoma* (Sowerby); Kaicher: card 2566 (syntype of *M. sykesi*).  
1981 *Favartia sykesi*; D'Attilio: 40, fig. 1.  
1983 *Favartia sykesi*; D'Attilio: 40, fig. 1 (syntype).  
1984 *Favartia sykesi*; D'Attilio & Myers: figs. 6-7, 8.  
1985 *Favartia sykesi*; Cernohorsky: figs. 7-8.  
1985 *Favartia sykesi*; Vokes: 32, fig. 20 (syntype).  
1988 *Favartia cyclostoma* (Sowerby); Drivas & Jay: pl. 21, fig. 6.

*Favartia sykesi* is represented by one syntype and two other "probable" syntypes, which may have come initially from the same lot, although they were also presented to the BMNH in 1904 by Preston

(D'Attilio, 1981 and D'Attilio & Myers, 1984). Fair (1976: pl. 20, fig. 293) and Cernohorsky (1978: pl. 19, fig. 3a and 1985: figs. 7-8) figured a specimen as being the "holotype." As Preston never designated a holotype, that designation is thus incorrect, but the specimen illustrated by these authors is most probably the one illustrated by Preston in 1904.

The species has been synonymized with *F. cyclostoma* by several authors, but *F. sykesi* is easily separable from *F. cyclostoma* by its more elongate and narrower shell with crowded, more marked, flattened and squamose varices. The shell of *F. sykesi* also has thinner varices and a narrower aperture. These differences were observable on all specimens examined and are also easily recognizable on the photographs. Unfortunately, the larval development of *F. sykesi* is not known.

### *Favartia (Favartia) rosamiae* D'Attilio & Myers, 1985 Figs. 9, 15.

- 1984 false "*peregrina*"; Glass & Foster: 7, figs. 19-21.  
1985 "*false-peregrina*"; Vokes: 30, fig. 12 (only).  
1985 *Favartia (Murexiella) rosamiae* D'Attilio & Myers: 58, figs. 1-6.  
1986 *Murexiella rosamiae*; Houart: 13, text figs. p. 11 and 13.  
1986 *Favartia rosamiae*; Springsteen & Leobrera: 140, pl. 38, fig. 4.  
1988 *Favartia rosamiae*; D'Attilio: figs. 1-2, 3, 4.

Glass & Foster (1984: 7) and Vokes (1985: 30) have illustrated this species as false "*peregrina*," as it was (at that time) often confused with *Murexiella peregrina* Olivera, 1980, another small Philippine muricid. The specimen that Glass & Foster (1984: figs. 21-22) figured from Hawaii as *F. garrettii* (Pease), apparently is the same species, and probably bears a wrong locality. *Favartia garrettii* is another species with intricate history, and was also once synonymised with *F. sykesi* by Cernohorsky (1985).

*Favartia rosamiae* was initially compared with *F. cyclostoma*, which I presume included at that time, not only the true *F. sykesi*, but also the true *F. cyclostoma*. Differences between *F. cyclostoma* and *F. rosamiae* are evident; and moreover, both species have different larval development, planktotrophic for *F. rosamiae* and non-planktotrophic for *F. cyclostoma*. The larval development for *F. sykesi* being still unknown to me, the main reasons to separate *F. rosamiae* from *F. sykesi* are based on shell morphology and sculpture, and are very easy to determine: *F. rosamiae* is always smaller (for a like number of teleoconch whorls), with a decrease in the number of varices on the last whorl of adult shells, a peculiarity never observed in *F. sykesi*. Other features are identical for both species, and juveniles are certainly difficult to separate.

Geographical distribution of *F. rosamiae* is widely Indo-Pacific, as can be illustrated by the following samples:

Zululand, South Africa, Natal Museum D9543.  
North of Mauritius Is., R. Houart coll.  
Seychelles Is., R. Houart coll.  
Off Phuket Is., Natal Museum J3701.  
Rabaul, Papua New Guinea, R. Houart coll.  
Tioor Is. Moluccas, R. Houart coll.  
New Caledonia, MNHN.  
Cebu, Philippines, R. Houart coll.  
Okinawa Is., R. Houart coll.

#### ACKNOWLEDGEMENTS

This paper was possible thanks to the helpful collaboration of Prof. E.H. Vokes (Tulane



University), Ms. K.H. Way (BMNH), Mrs. K.R. Smythe (Worcs, G.B.) and Mr. R. Isaacs (London). I am very grateful to all of them.

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## MEET...BOBBIE HOUCHIN

Conchologists of America is indeed fortunate in our Membership Chairman. Patient, helpful and friendly, Bobbie is the first contact most new or prospective members have with COA. She takes time out of her busy life to answer their questions and fulfill their requests, to mail them their first copies of the *American Conchologist*. It's Bobbie who handles problems with lost or undelivered magazines. It's Bobbie who designed our dues reminder cards and redesigned our membership application forms. It's Bobbie who keeps over a thousand membership records for COA. And it's Bobbie who always comes through when Treasurer Walter Sage and your editor need help.

Born in Bardstown, Kentucky, where Stephen Foster wrote "My Old Kentucky Home," Bobbie now lives with her husband, Earl, their daughter, Bruce, and a new dauschund pup, Tootsie, in Louisville, Kentucky. She is bookkeeper for Light Touch Services while she continues work on her degree in Finance from University of Louisville. Needlework, reading and swimming are her interests, and of course, shells. "The beauty of shells is more important to me than the scientific aspect," she states. "I enjoy COA for its very open and friendly atmosphere and for the enlightenment it offers about shell collecting on all levels."

Bobbie says, "Thank you all for your cooperation in sending address changes, and in answering my correspondence when necessary. You make my job easier. I hope I see all of you in Melbourne in July!"

## NEW FISH IN THE SEA??

In a not-very-surprising move, the State of Florida has made it necessary to have a fishing license for saltwater fishing — \$12 a year for residents, and \$15 for a ten-day period for nonresidents. What is surprising (and of concern to us) is Florida's new determination of what constitutes a fish. No longer confined to dolphin, marlin, yellowtail, and the like, the cartilaginous and bony fishes, the definition of **fish** is expanded to include living crustaceans, echinoderms, bivalves and gastropods! Dead shells and living critters near the beach are still free to anyone, but an also-revised definition of **fishing** appears to include snorkeling, diving and dredging! What will they tax next?

## SANIBEL MUSEUM NEWS

William Hallstead, Chairman of the Sanibel Shell Museum and Educational Foundation, Inc., writes to thank COA members for their continued support of the developing museum. He goes on to say that the land for the project will soon be deeded to the Foundation, and the capital campaign to raise the \$1,250,000 for building, landscaping and exhibits will shortly be underway.

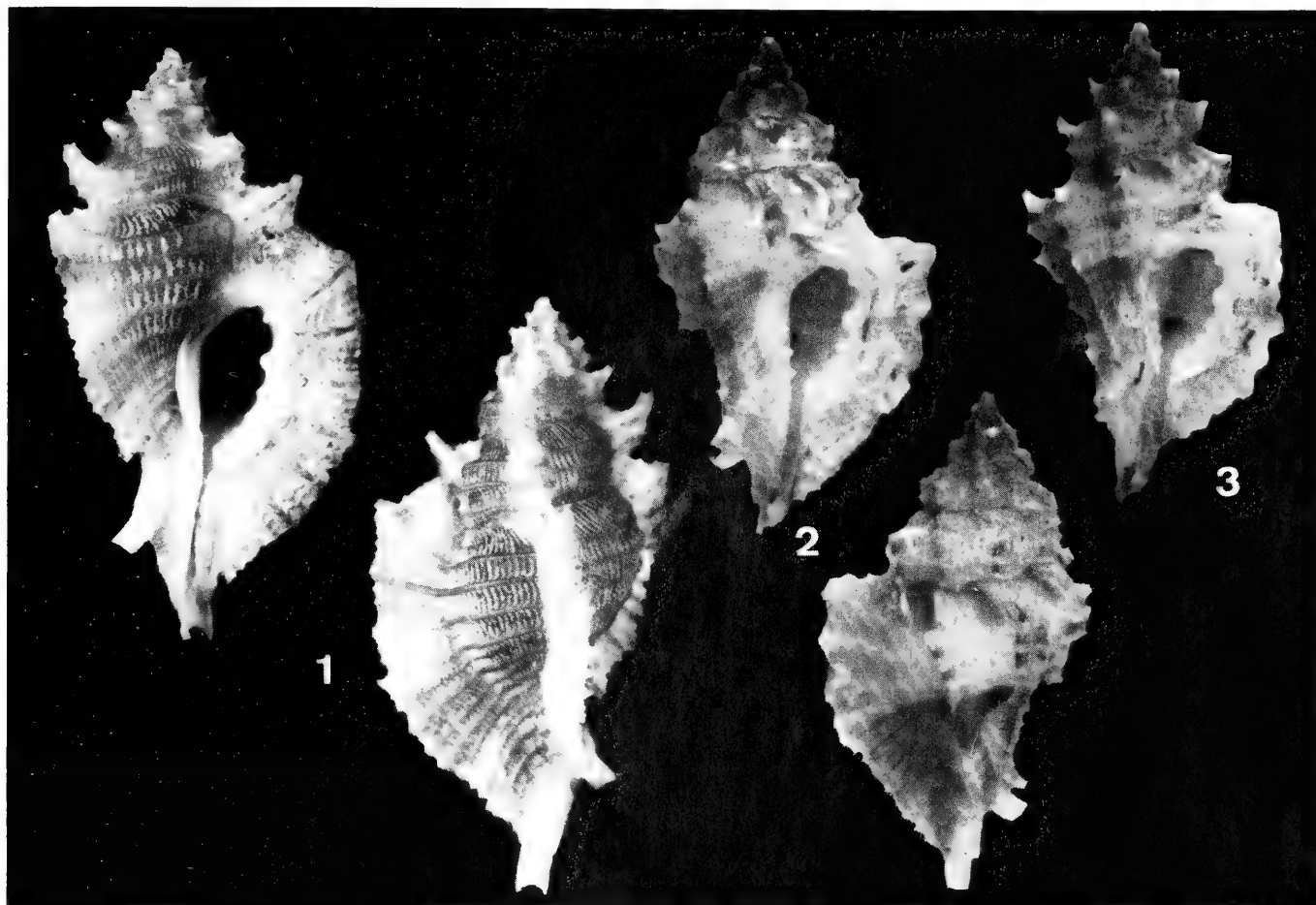
## WSM Annual Meeting



The Western Society of Malacologists will hold its 23rd annual meeting in Seattle, June 18-22, 1990, on the campus of the University of Washington. For further information, contact WSM President Roland Anderson, c/o The Seattle Aquarium, Pier 59, Seattle, WA 98101, or tel: 206-386-4359.

## FRENCH SHELL SHOW

The Association Française de Conchyliologie has recently held its Second International Shell Show in Vincennes on January 27 and 28. If you've always wanted to show your shells in France, write to Association Française de Conchyliologie, 1, Impasse Guémené 75004 Paris, FRANCE for information about next year's show. Incidentally, the Association also publishes a very interesting bilingual quarterly, **XENOPHORA**.



1. *Pygmaepterys dondani* (Kosuge, 1984), Bohol Straits, 180-200m. 2-3. *Pygmaepterys philcloveri* (Houart, 1984).  
 2. Holotype MNHN, 13.6mm. 3. Paratype R. Houart coll., 13.1mm.

***Pygmaepterys* Vokes, 1978, a more appropriate genus for *Pterochelus dondani* Kosuge, 1984?  
 by Roland Houart**

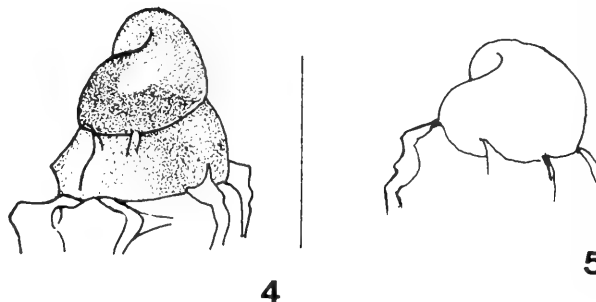
Examination of the shell of *Pterochelus dondani* Kosuge, 1984 indicates a morphology much nearer to *Pygmaepterys philcloveri* (Houart, 1984) than to any *Pterochelus* species. There is also a strong resemblance to *P. bellini* D'Attilio & Myers, 1985 and *P. funafutiensis* (Hedley, 1899), both also occurring in the Philippine Islands.

Vokes (1985) has observed that *Pterochelus* is not an appropriate genus, and referred *Pterochelus dondani* to *Pterynotus* s.s. because of the denticulate aperture and the absence of a channeled spine at the shoulder of the whorl. The three varical wings on the penultimate and last whorls of *P. dondani* cause that shell to resemble a *Pterynotus* indeed, while "true" *Pygmaepterys* species have 5 to 6 varices on the last whorl. Otherwise, sculpture and microsculpture of the shell, the form of the wings, the form and dentition of the aperture, as well as the varical ornamentation on the first teleoconch whorls, certainly place it closer to *Pygmaepterys*. *P. dondani*, here illustrated, has 7 varices on the three first teleoconch whorls, 5 on the fourth, and 3 on the last two whorls.

As *Pygmaepterys* species are muricopsine, and *Pterynotus* or *Pterochelus* are muricine, the only manner to know the truth about the species will be study of the radula.

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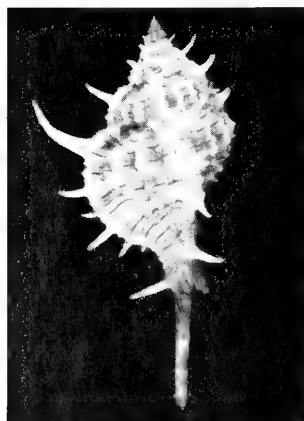


4. Protoconch of *Pygmaepterys philcloveri*, holotype (scale bar: 0.5mm).

5. Protoconch of *P. dondani*, here illustrated (scale bar: 0.5mm).

CARIBBEAN MURICIDAE — *SIRATUS* AND *HAUSTELLUM*

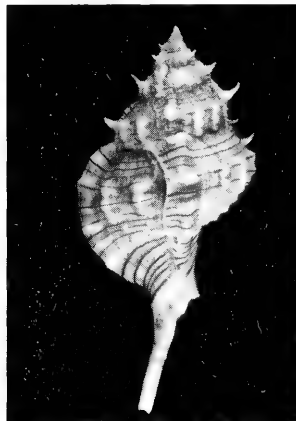
by Kevan Sunderland



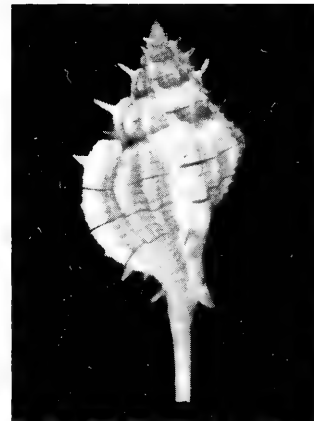
*Siratus articulatus* Reeve, 1845. 300' off the Dominican Republic. 60mm.



*Siratus articulatus*, form *finlayi* Clench, 1955. 90 fms., Matanzas Bay, Cuba. 60mm.



*Siratus caillieti* Petit, 1856. 350' off Barbados. 62mm.



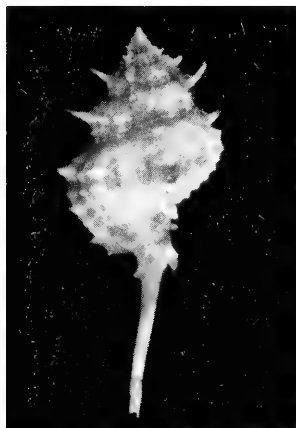
*Siratus ciboney* (Clench & Farfante, 1945). 1200' on mud, Tryall, Jamaica. 58mm.



*Siratus consuela* Verill, 1950. 400' in sand, Braco, Jamaica. 68mm.



*Siratus formosus* Sowerby, 1841. 700' on mud, Tryall, Jamaica.



*Siratus kugleri* (Clench & Farfante, 1945). 300' off Dominican Republic. 67mm.



*Siratus motacilla* Gmelin, 1791. 400', Barbados. 55mm.



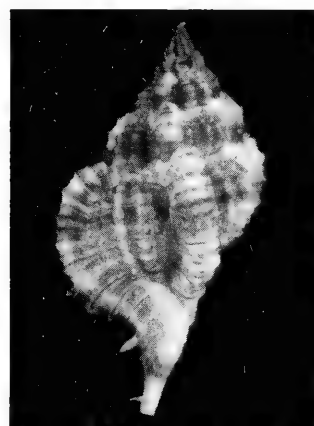
*Siratus perelegans* E. Vokes, 1965. 200', Martinique. 58mm.



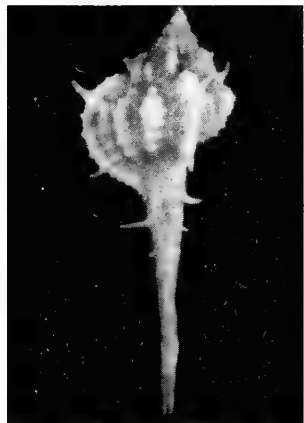
*Siratus senegalensis* (Gmelin, 1791). 18 fms. off Itamaraca, Brazil. 57mm.



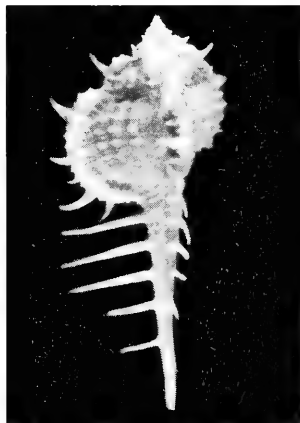
*Siratus tenuivaricosus* (Dautzenberg, 1927). 90', S. Brazil. 85mm.



*Siratus thompsoni* Bullis, 1965. 150' off Orinoco River, Venezuela. 42mm.



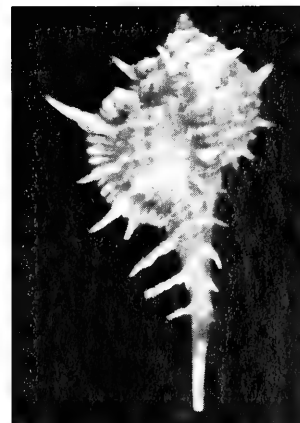
*Haustellum anniae* (Smith, 1940). 400', 120 miles west of Egmont Key, FL. 31mm.



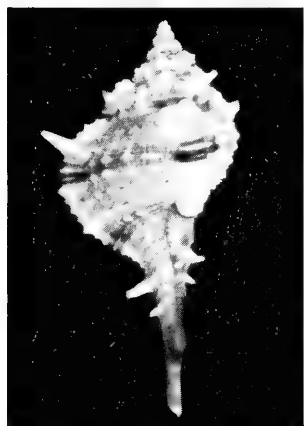
*Haustellum cabritii* Bernardi, 1959). 140', off Dry Tortugas, FL. 68mm.



*Haustellum chrysostoma* (Sowerby, 1843). 60' in sand, Isla Margarita. 65mm.



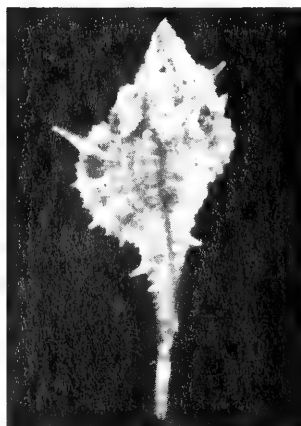
*Haustellum donmoorei* (Bullis, 1964). 200' in sand, Gulf of Venezuela. 62mm.



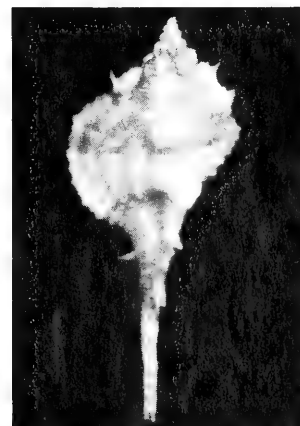
*Haustellum garciai* (Petuch, 1987). 200', southern Honduras. 62mm.



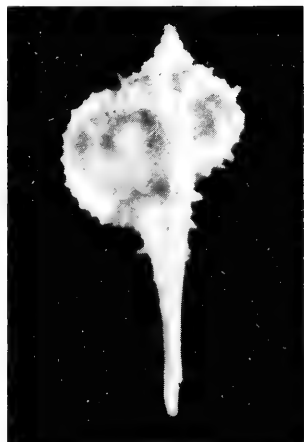
*Haustellum messorius* (Sowerby, 1841). 6', Coastal Honduras. 55mm.



*Haustellum olssoni* (Vokes, 1967). 90-140', Caribbean Panama. 44mm.



*Haustellum rubidus* (Baker, 1897). 5', Tavernier, FL. 39mm.



*Haustellum sallasi* (Rehder & Abbott, 1951). 150', 30 miles east of St. Augustine, FL. 44mm.



*Haustellum woodringi* (Clench & Farfante, 1945). 4', near Kingston, Jamaica. 38mm.

With gratitude to Dr. E.H. Vokes for her review of this material.

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## MALACOLOGY ASSISTS ARCHAEOLOGY

*American Conchologist* does not, as a rule, use previously published material. However, the following article, by Reg Gage of Hawaii, was published in *Archaeology on Kaua'i*, a special-interest publication, quite limited in distribution, produced by the Anthropology Club of Kaua'i Community College in May, 1988, so it is unlikely that it would come to our attention. Thus, we offer, for your enjoyment, Reg Gage's account of an archaeological mystery unraveled through malacological assistance.

## NOTE ON THE COOK VOYAGE COLLECTION IN THE BERNE HISTORICAL MUSEUM

by Reginald P. Gage, II

Whether a collection is great or small, it can lose its documentation with the passage of time. However, sometimes the lost legitimacy of an old collection is reinterpreted by scholarship. So it was with the Cook Voyage Ethnographic Collection in the Berne Historical Museum, Switzerland. The scholar reinterpreting this collection was Dr. Adrienne L. Kaeppler, then with the Bishop Museum, and now with the Smithsonian Institution.

Kaeppler (1978: 2) also charted the direction for this paper in counseling that "documenting the precise places of collection . . . is the goal [of research; and that] cross-disciplinary research [can] . . . help to localize artifacts as well as help to illuminate natural history habitats."

Hawai'i, famous for its beauty, is equally famous, among naturalists, for its land mollusks. These snails are noted for localized distributions and for isolation from related forms, resulting in a multitude of forms, colors, patterns, sculptures and species. In this paper, I present malacological evidence which will demonstrate that the shells in an ornament in the Berne Historical Museum (Berne, FR25) collected during Cook's third voyage and attributed by Henking, and later by Kaeppler, to Tonga (in the original shipping list to the "South Seas"), are of a land snail genus endemic to the islands of Kaua'i and Ni'ihau. I will further show that the species which is representative of the majority of the ornament's shells could have been obtained only from the low flat, between the sea bluff and the shoreline extending across the *ahupua'a* (a Hawaiian land division) at Kalihi-Kai, Kaua'i, Hawai'i.

The Berne shell ornament (Kaeppler 1978: Fig. 70), which seems to be a fragment of a shell lei, is made from the shells of the land snail genus *Carelia* with a plant fiber tie. This land snail genus is endemic to the Hawaiian Islands of Kaua'i and Ni'ihau. The majority of the ornament's shells are the species *C. cochlea* (Reeve, 1853); the single bleached shell of the lei is *C. dolei* (Ancey, 1893).

These species are now extinct, but their shells are occasionally collected along the northern coastal regions of the island of Kaua'i. Their empty shells can be found in a sub-fossil state on the coastal plains on which they lived and are sometimes eroded from these flats through the actions of wave and stream. It is probable that shells comprising the Berne lei were collected in such a manner.

*C. cochlea* is restricted to the Kalihi-Kai flat, and *C. dolei* is localized to the Hā'ena flat between Manoa stream and Wainiha Bay. Both species are found scattered in a darker cultural layer of beach calcareous sand and loam about six to ten inches in depth. The calcium of the sand loam stabilizes the pH balance of the thin *Carelia* shells, thus protecting them from disintegration. The presence of *Carelia* shells with cultural material, e.g. kitchen midden, worked coral and basalt, suggests that early Hawaiians may have altered the probable dry forest habitat of this genus of land snails.



Hawaiian Lei of Endemic Land Shells: *Carelia cochlea* and *Carelia dolei* — Berne Historical Museum (Berne FR 25). Photo courtesy of Dr. Adrienne Kaeppler, Smithsonian Institution.

Cooke (1931) states that *C. cochlea* "is easily recognized from the other species of *Carelia* by its slender, turreted form, relatively small aperture, and especially by the presence, in most specimens, of distinct, continuous spiral ridges." The species is burnt chestnut in color. Some shells may have a narrow white zone beneath the sutures. *C. dolei* is described to be, in large part, bleached, but showing some wine brown color. The first four whorls of the snail are usually purplish with a narrow subsutural white border. This color fades to white on the following whorls. The last two or three whorls are chestnut, the base darker, with a wide white zone below the suture. This zone includes a shoulder-keel.

The fact that the shells of an ornament attributed to Tonga are land shells endemic to a specific locality on the island of Kaua'i implies that the ornament was made in Hawai'i, not in Tonga. The presence of shells endemic to the Hā'ena flat in an ornament with shells endemic to the Kalihi-Kai area also suggests that trade occurred between these two regions of the island. The improbability of Hawaiian-Tongan trade, and Cook's rediscovery of Kaua'i after a voyage from the Society Islands and Tonga leads me to conclude that the attribution of the ornament in the Berne Museum Records to the "Friendly Islands" [Tonga] was simply a bad guess on the part of the cataloger. It is probable, as Kaeppler wished to hypothesize, that the ornament is from Kaua'i.

\* P.O. Box 428, Kalaheo, HI 96741.

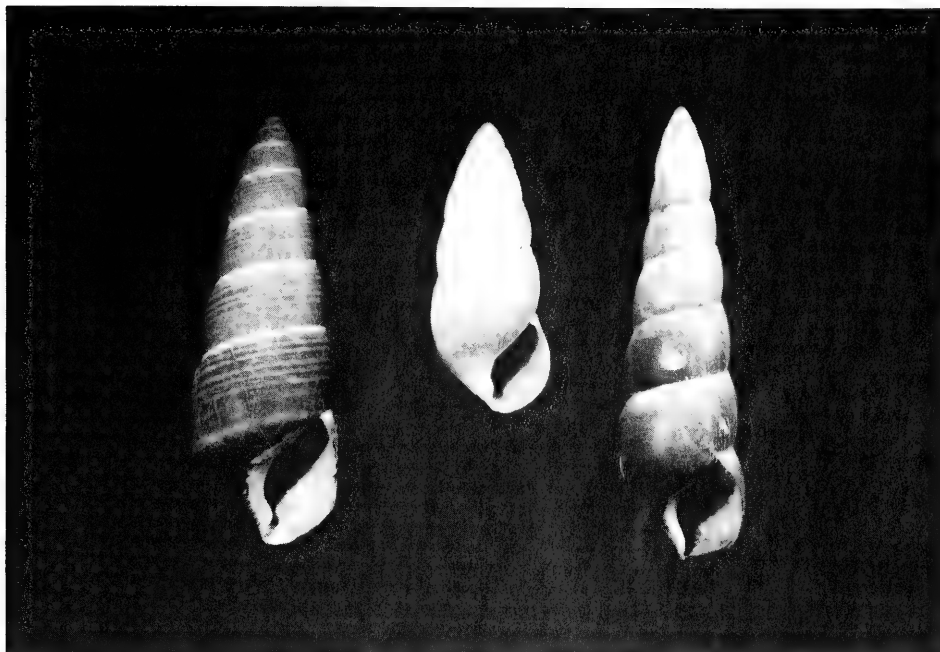


Photo by Richard Goldberg

Left to Right: *Carelia cochlea* (Reeve, 1849) — 51mm. Washed downstream towards shore, Kalihikahi, Kauai, Hawaii. Leg. Gage & Goldberg, Nov. 1988.

*Carelia sinclairi* Ancey, 1892 — 35mm. Halehaa, Niihau, Hawaii at a place called Haiwimoeonakupuna, "The Sleeping Bones of Our Ancestors." The Hawaiian name of the shell is Pupumoeone, "Shell of the Sleeping Sand." Leg. R. Gage.

*Carelia dolei* Ancey, 1893. 52mm. Sand Dunes at Ha'ena, Kauai, presumably from an eroded bank of the Limahuli Stream. Leg. W.A. Bryan, 1915, Gage Collection.

Hawaiian Lei of Endemic Land Shells: *Carelia cochlea* and *Carelia dolei* — Berne Historical Museum (Berne FR 25). Photo courtesy of Dr. Adrienne Kaepler, Smithsonian Institution.

Hawaiian land shell leis (called **lei pupu**) are rare; therefore, it is regrettable that this ornament is now missing from the collection of the Berne Historical Museum. Fortunately, however, there is a good photograph of the lost ornament.

Dixon (1789, pl. unnum., Fig. 1) depicted, described and named the first European-collected Hawaiian land snail (page 298), calling it *Apex fulva* and placing the shell in the European land shell genus *Helix*. Later, the species was reassigned to an exclusively Hawaiian genus and is now known as *Achatinella apexfulva*. Dixon notes that this shell was obtained from a shell necklace collected from a native Hawaiian. Cooke (1912, page 318) reports that, about 1860, J.S. and O.P. Emerson localized the color pattern of the shells in the Dixon lei to a grove of trees on the south side of Opae'ula Gulch on the island of O'ahu.

From these records it may be assumed that land shell leis were once widely worn throughout Hawai'i. Such leis are now rare; the only Hawaiian shell lei in the collection of the Bernice P. Bishop Museum is depicted in Buck (1957, Fig. 335). This lei is made of the long turreted shells of *Carelia dolei* (Ancey, 1894). Cooke (1931, p. 48) has localized *C. dolei* to the Ha'ena coastal plain of the island of Kaua'i, . . . between the Manoa stream and Wainiha Bay. There is a similar *C. dolei* lei in the collection of the Grove Farm Museum at Lihu'e, Kaua'i. Finally, the W.A. Bryan land shell collection (circa 1890), now owned by the author of this paper, contains two drilled *Carelia sinclairi* Ancey (1892) from the island of Ni'ihau which appear also to have been taken from a lei.

The shells of the Berne ornament are threaded through their apertures and out the decapitated spires, similar in technique to the way in which Hawaiian cone and columbellid-shell leis are strung. Fossil *Carelia* shells are brittle: their spires are easily removed with a firm grip on the body whorl and a twist with the fingers on the spire.

The threading style of the Berne ornament is the most common method of stringing Hawaiian flower and other leis. It is recorded from the island of Ni'ihau by Moriarty (1985, page 79) as **Lei Kui Pololei** ("lei sewn straight") and is also known as the Single or the Old Fashioned style.

Whether an object is rediscovered in a museum, or uncovered on a site, the Berne shell lei illustrates that natural history records are important and sometimes overlooked sources in the localization of ethnographic material.

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NOTES ON THE GENUS *LYRIA* IN THE WESTERN ATLANTIC

by Emilio García and Kevan Sunderland



*Lyria russjenseni* Emerson, 1985. 55mm. Mayaguez, Puerto Rico, 150 fathoms in fish trap. Paratype E. Mike Cahill Collection.



*Lyria leonardi* Emerson, 1985. 27mm. juvenile. Off Grenada in 80 fms.



*Enaeta leonardhilli* Petuch, 1988. 19mm. Fernando de Noronha, Brazil. 2-6' in sand in reef areas.



*Enaeta guildingii* (Sowerby, 1844). 17mm. Martinique, 20-30' in sand in reef. Mike Cahill Collection.

photos by Kevan Sunderland

Almost twenty years have passed since Weaver and duPont's *The Living Volutes*, was published. Since then, predictably, there have been new findings in the genus *Lyria* in the western Atlantic.

Only one year after *The Living Volutes*, a beautiful new volutid was dredged 20 miles ESE of Santo Domingo, island of Hispaniola, in 174m. Its *Scaphella*-like appearance, smooth body whorl and particularly the denticulate interspaces between the radula cusps were considered sufficient differences to warrant a new subgenus: *Cordilyria* Bayer, 1971. The nominate species, *Lyria* (C.) *cordis* Bayer, 1971, is "vinaceous tan" with paler bands below the suture, below the middle of the body whorl and along the fasciole. Reddish brown spots, in axial rows, appear after the third whorl, a color pattern resembling the *Scaphella*.

In 1985 Emerson described two new deepwater species: *Lyria russjenseni* and *Lyria leonardi*. *L. russjenseni* reaches 70+ mm, is a buff-cream "with small v-markings, spirally banded by broken blotches of irregular brown squares below the suture, midway, and anteriorly on the body whorl"; the suture is distinct but weakly channeled and the columella has three prominent anterior plications and weak lirations extending into the aperture. The type locality is off Parguera, southern Puerto Rico, from lobster traps in 244-300 meters.

*Lyria leonardi* is a very handsome species and, although the holotype measures only 52mm, it probably reaches over 100mm, based on a 72mm fragment from Golfo Triste, Venezuela. The type locality for *leonardi* is off Cabo Rojo, SW Puerto Rico, where it has been trawled in  $\pm 500$ m. The shell is "tannish white; spirally banded by irregularly squarish blocks of brown below the suture and with three similar spiral bands on the body whorl; spirally threaded by

6 to 7 brown, strongly penciled lines on the body whorl." The shell has 14 well-defined axial costae in the first three postnuclear whorls and 11 loosely formed axial ribs in the remaining three whorls. The columella has three prominent anterior plications and thread-like lirations.

Quite different from other recent *Lyria*, this species was compared with the Miocene *L. limata* Hoerle & Vokes, 1978, differing mainly by not having barbs on the outer lip. It could also be compared with the Oligocene species *Lyria nestor* Casey, 1903, similar to *limata* but lacking barbs. *L. nestor* differs from *leonardi* by having spiral threads throughout the whorls and by not having the squarish brown blotches.

Emerson (1985, p.29) says *Lyria cordis*, *vegai*, *beauui*, *russjenseni* and *leonardi* appear very closely related and "form a species complex for which the subgenus *Cordilyria* is available, if recognition is subsequently deemed warranted on the basis of anatomical differences with the Indo-Pacific *Lyria*."

Some discoveries have been made in the species of *Lyria* s.l. already known. A study by J.P. Pointier and G. Poli (1985) on 17 adults and several juveniles of *Lyria beauui* (Fischer & Bernardi, 1857), of which at least 8 were live collected, convincingly concluded, after morphological and anatomical comparisons with *Lyria archeri* (Angas, 1865), that the two species were synonymous. The differences they found between the two species, such as a slightly larger shell and lighter coloration, seemed insufficient to them to grant *archeri* species status. Although they also found that *beauui* has a larger protoconch, this is not a meaningful difference, since other American volutids are known to have different size protoconchs infraspecifically (García, 1988).

Pointier and Poli compare in the same paper *L. beauui* with *L. vegai*

\*135 Oak Crest Drive, Lafayette, LA 70503.

Clench & Turner, 1967 and, again, synonymize the two species. *L. vegai* is known from only one dead specimen collected in a fish trap in deep water off Cabo Rojo, Dominican Republic. This taxon was originally closely associated with *beauui* but separated from it by lack of axial ribs on the body whorl and by the number and strength of columellar plaits and lirae.

The French authors contradict Clench & Turner's assertion concerning the columellar plaits and state that they are the same in both species and that the only appreciable morphological difference is the very sharp attenuation on the ribs, on *vegai* after the first two turns of the spire and on *beauui* between the third and fifth. They also point out that *beauui* has a thicker lip than *vegai*, but seem to attribute this to their belief that the specimen of *vegai* may be a sub-adult. We have not examined the specimen but the dorsal view of the picture that appears in **The Living Volutes** shows a thickened lip. Further, the ventral view shows the margin of the lip with the characteristic brown lines of many adult volute species (Weaver & duPont, 1970, pl. 6, figs. F and G). It seems that, in addition to the one difference mentioned by Pointier and Poli, the obsolete axial development in the body whorl and the lack of internal dentition places *vegai* closer to *L. cordis*, which has an "outer lip slightly thickened, not denticulated within" and a smooth body whorl. These characteristics would seem to place *vegai* in the subgenus *Cordilyria*. The study of the radula, when it becomes available, will be a determinant factor for its final subgeneric placement.

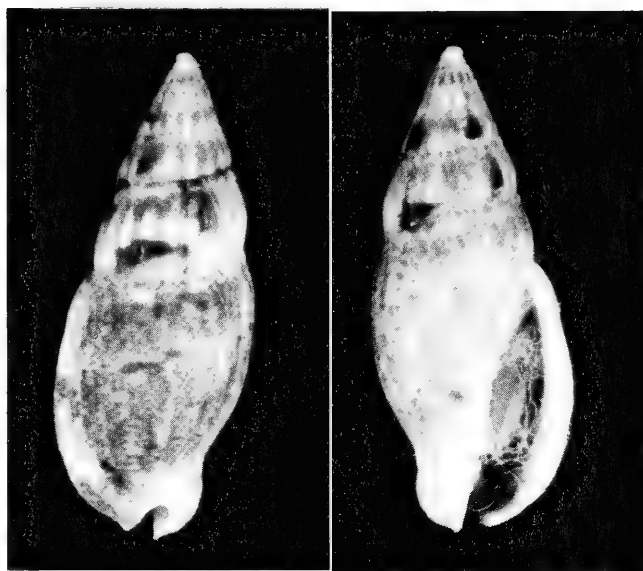
But what about the subgeneric placement of *L. beauui* and its form, *archeri*? There are three available subgenera: *Lyria* s.s., *Enaeta* H. & A. Adams, 1852 and *Cordilyria*. *Cordilyria* is defined as having obsolete axial development towards the body whorl, and the nominate species is described as having a smooth body whorl. The definition also states that the interspaces between the cusps of the radula are denticulate, a characteristic that is lacking in *beauui* (Pointier & Poli, 1985). Further, the two specimens of *L. cordis* known possess no internal labial callus or denticulation, obvious features in mature *beauui*. These differences suggest that *beauui* should not be placed in *Cordilyria*.

Originally, *beauui* was placed in the genus *Voluta* by Fischer and Bernardi (1857), but Tryon (1882) transferred it to *Lyria*. Its form *archeri* was described as *Voluta (Lyria) archeri* Angas, 1865, and transferred to *Enaeta* by Dall (1907). The genus *Enaeta* is characterized mainly by the presence of a blunt tooth about midpoint inside the outer lip. The lip, at times, also has serrations. *L. beauui* was not placed in *Enaeta* because the few specimens known were either young or sub-adult and lacked this feature. The fully grown specimens collected in recent years do possess a sort of tooth development. The specimens we have examined have two relatively large teeth about midpoint inside the lip margin, so close as to look like a single bifid tooth. Anterior to them may be one or two smaller teeth, or perhaps obsolete serrations. The type species for *Enaeta*, *E. barnesi* (Gray, 1825), has not only the blunt tooth but a thick submarginal callus; *E. cylleniformis* (Sowerby I, 1844) has, at times, two teeth at midpoint and submarginal serrations; *E. reevei* (Dall, 1907) occasionally has submarginal serrations; and *E. cumingii* (Broderip, 1832) and *E. guildingii* (Sowerby, 1844) may have, at the anterior end of the lip by the siphonal canal, a callus as pronounced as the midpoint tooth.

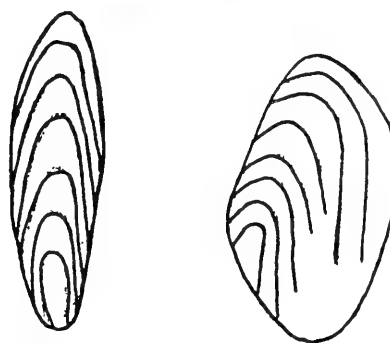
Is this enough to place *beauui* in the subgenus *Enaeta*? We don't think so: in spite of its marginal dentition, *beauui* is morphologically quite different; further, its operculum has the typical shape and apical nucleus of *Lyria* s.s. and is, therefore, different from those of *Enaeta* which we have studied (See fig. 1). As a matter of fact, *Enaeta* is superficially so different from other *Lyria* that at least one worker in the Volutidae proposes removing the subgenus from this family to the Volutomitridae (Guido T. Poppe, in litt.), at one time considered a subfamily of the Volutidae.

*Lyria beauui* has been compared to the Indo-Pacific *L. (L.) mitraeformis* Lamarck, 1811 (Tryon, 1882; Bayer, 1971). In our opinion, it compares more favorably with *L. (L.) planicostata* Sowerby,

1903) in shape, sculpturing and marking variations within the species. Further, *planicostata* develops a heavy, submarginal lenticular callus inside the aperture, characteristic of many American *Lyria*, including fossils. Another Indo-Pacific *Lyria*, *L. (L.) delessertiana* (Petit de la Saussaye, 1842), develops obsolete serrations in some specimens of the form "*tulearensis*." Since *beauui* favorably compares in shell morphology, radula and operculum to *Lyria* s.s., it seems reasonable to retain its original placement, at least until more substantial differences can be found.



*Enaeta reevei* (Dall, 1907). 22mm. 10' in sand in reef.



Opercula of *Lyria beauui* (left) and *Enaeta reevei*

Two species of *Enaeta* have become more readily available to collectors since the publication of **The Living Volutes**: *E. guildingii* and *E. reevei*. Still a rare species, the latter seems confined to the Bay Islands, Honduras, in sandy patches inside the reefs in a few feet of water. *E. guildingii* also lives in sand, to a depth of some 30m. What appears to be a population variant of this species has recently been named *E. leonardhilli* Petuch, 1988. It has a somewhat more slender shell than the Lesser Antilles population, averages more axial ribs and is more conservatively sculptured. It is abundant under rocks in shallow water, as crabbed specimens, in the Fernando de Noronha Archipelago in N.E. Brazil.

ACKNOWLEDGEMENTS: We would like to thank Mr. Walter Sage of the American Museum of Natural History for providing literature necessary to this article; and Dr. Emily Vokes of Tulane University for the loan of specimens of *Lyria nestor* and *L. limata*; and Mr. Michael Cahill of Fort Lauderdale for the loan of specimens of *L. russjenseni* and the Martinique specimen of *L. guildingii*.

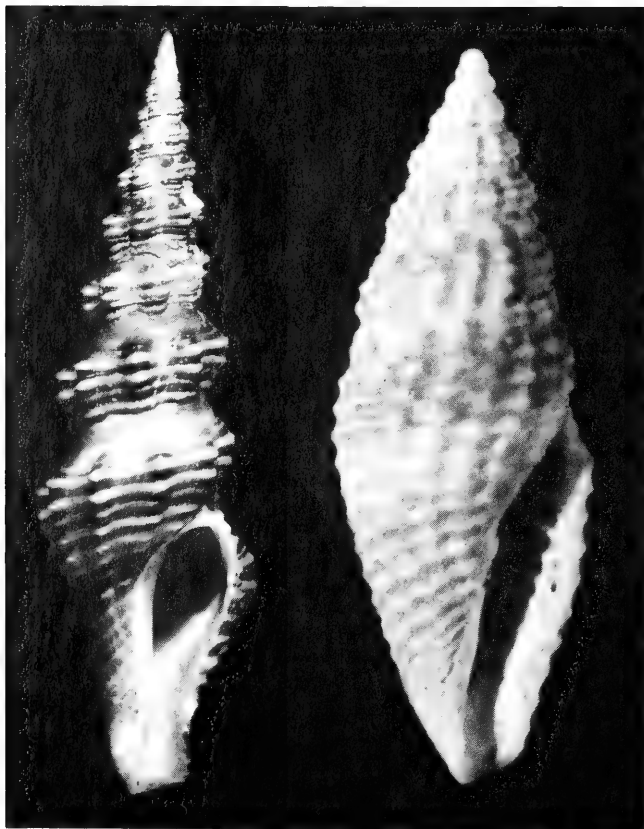


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## WANDERINGS OF AN INTINERANT MALACOLOGIST VI Down to the Sea in Shrimp Boats

by Donald R. Shasky, M.D.



*Mitrolumna mitriformis* (Shasky, 1961)

*Compsodrillia bicarinata* (Shasky, 1961)

Unless one has at his disposal a research vessel equipped with all manner of dredging equipment, the premier way to collect seashells is, without a doubt, to have access to a shrimp trawler. These boats are about 65 feet long, and outfitted with otter trawls, long nets weighted along the bottom, usually with a chain, and held open on either end with large, heavy, wooden doors. Most shrimp boats also carry small otter trawls, called "try nets" in English, and in Mexico, "changos," used to determine if shrimp are present.

Since shrimp burrow into the mud by day, coming to the surface to feed only at night, the trawlers usually work from dusk until dawn. The nets are dragged for three hours, then winched in, and their contents dumped on the deck, so that shrimp can be sorted from refuse, which includes rotting wood, sponges, echinoderms, fish, and seashells.

In 1956, I began my regularly irregular trips to Guaymas, Mexico. I quickly learned that going from shrimp dock to shrimp dock, inquiring of all the fishermen, "¿Tiene caracoles?" could sometimes produce outstanding specimens. The bargaining then began, and I was tough.

In June of 1958, after I had made my afternoon rounds of the docks, it was my good fortune to meet Captain Xavier Mendoza, production manager of a local shrimp company, who had just started collecting shells. We became good friends, and he began taking me and a few friends out collecting on one of his trawlers.

Late in 1959, I decided that day trips out of Guaymas were not rewarding enough. Captain Mendoza and I began planning what was to become the Ariel Expedition. He was to lease a shrimp boat for a week and work with the port captain of Guaymas for permission to leave port. My job was to find enough people to make the trip economically possible, and to obtain permission from the Mexican government to "fish" for seashells.

Obtaining this permission was a terribly frustrating experience. The Mexican Consulate in Los Angeles worked long but unsuccessfully to help me. Finally, I appealed to the head of the Department of Biology at the National University of Mexico in Mexico City. (She



photos by the author

**Dr. A. Myra Keen on the Ariel Expedition, August, 1960.**

was a sister-in-law of the then president of Mexico.) She was not sympathetic until I offered to take someone from her department as my guest. At that gesture, things turned positive, and after seven and a half months, permission came through.

The Mexican shrimp fleets are idle from July 15 to September 15, so I chose the end of August to begin our excursion. Some of the people on the excursion included the late Drs. Myra Keen and Bruce Campbell and John Q. Burch. Also present were Helen DuShane, Twila Bratcher and Gale Sphon, as well as members of the Conchological Club of Southern California and a Stanford University student.

Captain Mendoza leased the *Ariel*, a 105 foot trawler, a converted U.S. Navy mine sweeper. Arriving in Guaymas, I found he still had not received permission from the local port authority for our boat to depart. It was now Friday, and we were to leave early Sunday

morning. Mendoza invited me to go with him to see the port captain. He told me the man had been one of his professors while he was a student in the Mexican Naval Academy and, consequently, he didn't think he would have any trouble. But we were promptly told by his old professor that if he didn't want to let us go, we simply wouldn't go. After having said that, he smiled, and gave us permission and a lot of conversation.

Finally underway, we worked that first day just outside Guaymas Harbor off Cabo Haro. That night we crossed the Gulf of California and worked the second day in the channel between Loreto, Baja California, and Carmen Island. The third and fourth days we were off *Islas Partida* and *Espitu Santo* with a landing party at *La Paz* on the fourth morning. The fifth day we went north again and worked off both *Catalina* and *Monserate* Islands. That night, we recrossed the Gulf and we worked again off Cabo Haro on the sixth day.

We trawled at 20-120 fathoms (120-720 feet). Our efforts were greatly rewarded as many rare and undescribed species came up in the nets. A few of the shells that were collected on the *Ariel Expedition* include: *Emarginula velascoensis* Shasky, 1961; *Niso splendidula* (Sowerby, 1834); *Hindsiclava andromeda* (Dall, 1919); *Lioglyphostoma rectilabrum* McLean & Poorman, 1971; *Compsodrillia bicarinata* (Shasky, 1961); *Strombinoturris crockeri* Hertlein & Strong, 1951; and *Philbertia shaskyi* McLean & Poorman, 1971.

With Captain Mendoza's help, I have also had the opportunity to be on a trawler out of Mazatlan. In July 1963, he asked me to head an expedition on the Gulf of Tehuantepec. In addition, I have been aboard trawlers in Peru and in the Torres Strait between Australia and New Guinea.

Sometimes the flies and cockroaches make life miserable, but there are more pluses than minuses. Finding great shells with accurate data; watching shark feeding frenzies from the deck; bringing up enormous sea snakes, exotic fish, and echinoderms; sampling different cuisines; and the camaraderie of the fishermen all make the minuses minuscule.

Next time I will expand on this theme, describing the San Juan Expedition to the Gulf of Tehuantepec.

## REPRINT OF FOSSIL BOOK

New fossil collectors rejoice! That long-out-of-print classic, **PLIOCENE MOLLUSCA OF SOUTHERN FLORIDA** by Olsson and Harbison, is once again available, thanks to the folks at the Sanibel Shell Museum and Educational Foundation. The handsomely bound reprint has 590 pages, 64 plates, a seldom seen addendum and biographies of the authors. It is available for \$51.00 by sending payment to **The Shell Museum, P.O. Box 1580, Sanibel, FL 33957**. Florida residents please add \$2.94 State Sales Tax.

## WALKERANA

Serious land and freshwater buffs will be interested in the publication, **Walkerana**. Published irregularly and sold by complete volumes only, subscriptions run \$25 per volume, \$40 for Vol.1. Vol. 4 is now in preparation. Order from **Walkerana, P.O. Box 2701, Ann Arbor, MI 48106**.

*CURIOUSLY, Triton's Trumpet... appears on coins and now postage stamps of South Seas Countries because of the belief that this gastropod is capable of eating and controlling the population of the coral-destroying Crown-of-Thorns starfish. In actuality, triton shells normally feed on the smooth, blue or gray, Linckia starfish.*

from R. Tucker Abbott's new book, *Shells*.



## COA TROPHY WINNERS

Wendy and Ken Keaton show off their COA trophy, won at the Greater Miami Shell Show, Jan 19-21, for their exhibit, "Superfamily Strombacea: Conchs and Related Shells."

# SHELLING IN WAKAYAMA, HONSHU, JAPAN

by Hiroshi Munekata, Yasuo Koyama and Shinjiro Fujimoto

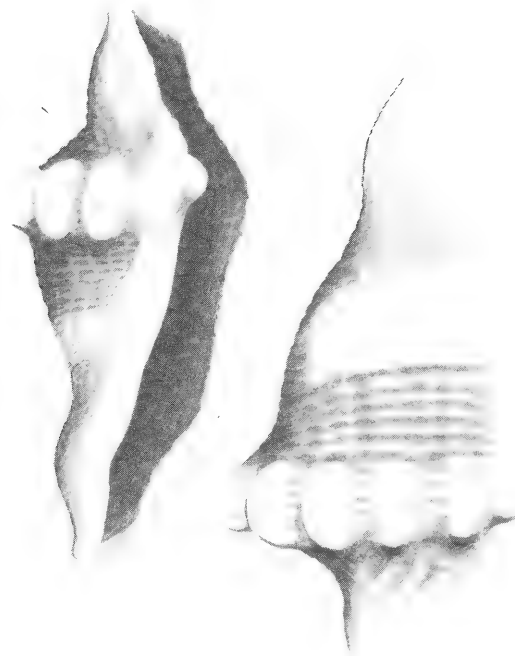


Wakayama-ken (Southern Honshu, next to Osaka) has been known for centuries for its rich land and marine life. As early as 1775, Kimura Kenkado, a brewer and scientist in Osaka, produced "Kigai-zufu" (Sketches of Unusual Shells), a classical scientific work illustrating and introducing uncommon shell fauna of Japan. It shows with sophisticated art many beautiful shells from Wakayama, including *Pleurotomaria hirasei*, at the time without species name or description, just "an unnamed shell." It was not until 1903 that this magnificent shell was described by Henry A. Pilsbry through the holotype obtained by Yoichiro Hirase from Kochi-ken, Shikoku.

Such abundance of shells (more than 2,000 marine and hundreds of terrestrial taxa) within such a small area (only 1880 sq. miles) is due to Wakayama's favorable natural environment. The coastline extends over 500 kilometers (320 miles) from north to south, and is directly washed by the Kuroshio Warm Current, originating at the Equator. The climate of Wakayama is generally mild, with plenty of rainfall. Snow and ice are seldom seen, even in the coldest season when, elsewhere, people have a hard time avoiding winter colds.

The Kuroshio Current brings rich varieties of tropical and subtropical life — corals, fish and shells. There are many steeply-inclining ocean beds, rich in coral reefs, everywhere to the south of the Kii Channel between Honshu and Shikoku, whereas ocean bottoms to the north of this area slope gently with fine sand or mud bottoms. The Kuroshio approaches Honshu most directly at the tip of the Kii Peninsula, though its course isn't always the same over a number of years. Once every few years, the course is sharply bent far off

\* The authors are all COA members from Japan. We were pleased to have them attend the 1989 COA Convention in San Diego.



*Rotaovula hirohitoi* Cate and Azuma, 1973, a lemon yellow ovulid from Japanese waters. 5mm.

painting by John Timmerman

to the south by cold water masses drifting from the northeast; then, unusual molluscan fauna are brought into the Wakayama area, resulting in a significant change in shell distribution.

**SHELL DISTRIBUTION:** It is convenient to divide the entire area into three different regions:

1. Northern Region — north of Cape Hinomisaki.
2. Middle Region — between Capes Hinomisaki and Banshozaki, Shirahama-cho.
3. Southern Region — south of Banshozaki, including part of Kumano-nada ocean space on the east side of the peninsula.

The Southern Region covers the largest area. It may be further divided into eastern and western portions, bordering at Shionomisaki, the southern extreme, where remarkable differences are observed in distribution. Under an intensified warming effect of the Kuroshio, this Southern Region fishes mostly for such subtropical seafood as spiny lobsters, while the Middle and Northern Regions operate principally for bottom fish.

As a result of industrial development and construction along the shore of the Northern Region, as well as increased restrictions on land disposal of fishing wastes there, shelling from fishing dumps has been poorer in recent years. A greater number of species could be obtained a generation ago, when these dumps often yielded shells that were uncommon and hard to obtain elsewhere. Shelling spots such as Suiken-hama in Wakayama-shi and Tatsugahama in Arita-cho, which are near Osaka and used to attract a great many shellers, have quickly disappeared.

A large variety of species, including tropical and subtropical shells, are still found in the Middle and Southern Regions, at places like



Illustration from the Habe Catalog

***Pleurotomaria salmiana* Rolle, 1889.**

Nada-cho and Gobo-shi (Ueno, Kusui and Tsui beaches). There, fishermen make impressive catches, prawning with gill-nets down to 100 meters, from late October to April. This area is known as the type-locality of *Rotaovula hirohitoi*, *Julia borbonica*, *Latiaxis cariniferoides*, *Conus* (*Endemeconus*) *urashimanus*, and *C. (E.) otohimeae*.

Sakai, Minabe-cho is the largest fishing port in the Middle Region; here, hundreds of boats dredging with prawn nets can be seen at one time. Also, a few trawlers operate farther out into the ocean. In contrast to operations from Nada-cho which are restricted to the small ocean area between Hinomisaki and Kirimezaki, dredging operations at Sakai involve the larger area from Hinomisaki to Ichiezaki, and go down to 150 meters, unexpectedly deep for this type of fishery. Some noteworthy species are: *Cypraea* (*Schilderia*) *hirasei*, *Vicimitra melaniana*, *Harpa harpa*, *Cypraeassis rufa*, *Cypraea* (*Schilderia*) *teramachii* and *Phenacovolva honkakujiana*. But a sheller has few chances to find these rare shells, since fishermen will almost always take them before one can get a look at the catches in their nets.

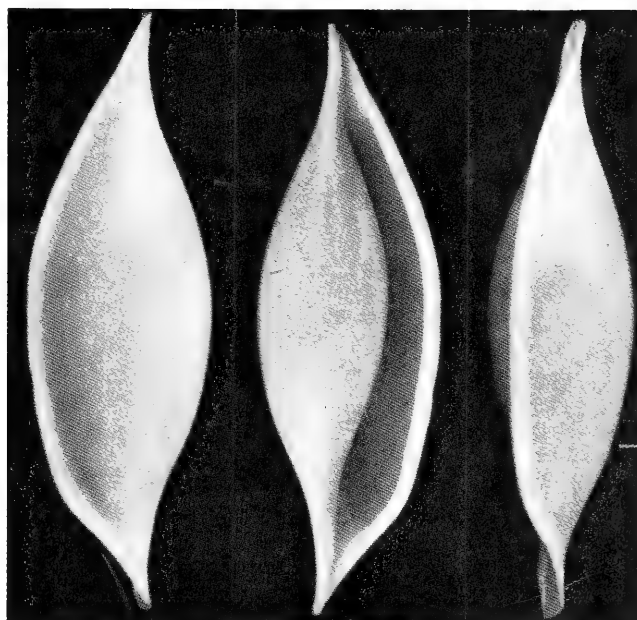
Even washed-up shells are no longer what they used to be because of shoreline construction. Nevertheless, in recent years, ambitious shellers have begun to make use of dredging to find *Conus* (*Textilia*) *dusaveli* and *Pleurotomaria salmiana*. Both are new discoveries. In addition, trawling boats from Katahara, Aichi-ken have had excellent catches of shells. They have also caught a few species of cold-water shells from depths of 200-400m: *Acmaea pallida* and the calliostoma, *Otukaia kiheiziebisu*.

Construction a few years ago to enlarge wharves at Ugui, Nachi-Katsuura-cho through dredging huge amounts of sand has given rise to discovery of noteworthy minute shells over the sand beaches.

**TRAVEL DIFFICULTIES:**

**Climate** — Japan's four islands have four seasons, hot summers and cold winters. Though winter cold is not severe in Wakayama, winter brings some ice and snow in the mountainous areas, and normally, in cities like Osaka and Tokyo, hard freezes and snow occur. But shelling is best in these colder months, so plan to wear warm clothing for shelling on the beach. All houses, hotels, offices and transportation are heated between November and April, though.

Wakayama-ken is frequently visited by typhoons and storms in late summer and early fall, and has more rainfall in all seasons than elsewhere in Japan. So carry a raincoat and stay indoors if a storm threatens.

Photos from C.N. Cate's  
Systematic Revision of the Ovulidae***Phenacovolva honkakujiana* (Kuroda, 1928). Holotype. 54mm.**

**Traffic** — In Japan all traffic keeps left. Roads are mostly paved and road signs have English words. But many local roads are narrow and crowded. Stop signs are everywhere. There are frequent traffic jams, even on express toll drives in urban areas, and every expressway charges high tolls. It is not as simple to drive in Japan as it is in the U.S. The speed limit on an expressway is 100 kmh (60 mph), but 40 to 50 kmh (25-30 mph) on other roads. Rent an auto or take a taxi if you are very close to your destination. But inter-city taxi rides are expensive and time consuming — nearly \$100 between Osaka and Wakayama — so trains or buses are a more reasonable type of transportation, particularly when traveling alone.

**Prices** — Japan no longer attracts tourists from many places because of her high prices on food and services. To save money, have a Japanese friend find an inn. A luxury hotel in a large city or tourist spot might cost Yen 20,000 or more a night, including two meals. Inexpensive business hotels or inns are available if you don't mind staying in an unlocked room. These are usually very safe, since none but guests are admitted to the building, but they offer communal baths and restrooms. A meal in a simple lunch house where many Japanese people eat need not be expensive — Yen 800-1000.

**Communications** — Not many Japanese people speak English, though quite a few understand many English words. But this is slow going because they are poor at communicating in English. Of course it is better for a visitor to know a little Japanese. But, since Wakayama-ken has many people living there who have spent time in the U.S., it is easier to communicate with native folk there than elsewhere in Japan. Before you leave for Japan, we recommend that you contact one of the following:

Yasuo Koyama, Wakayama-ken Museum of Natural History, Kainan-shi, Wakayama-ken, 640, Japan. Phone: 0734 83 1777; Residence: 0734 31 4708.

Norio Kikuchi, Dr. Kikuchi Kairui-kan (Shell Museum) 1-41, Ohnama-cho, Nishinomiya-shi, Hyogo-ken, 662, Japan. Phone: 0798 35 5060.

Hiroshi Munekata, 3385 Kita-toyama, Komaki-shi, Aichi-ken, 485, Japan. Phone: 0568 73 6870.

Shingo Habu, P.O. Box 10, Gobo, Wakayama-ken, 644, Japan. Phone: 0738 23 3702.



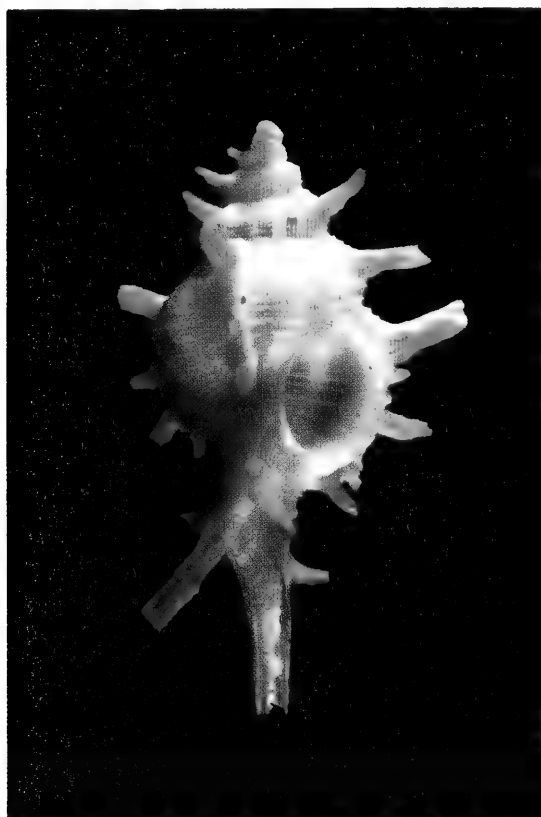


photo by Alice Monroe

*Chicoreus boucheti* Houart, 1983 - 31mm. Isle of Pines, New Caledonia, at 400m. From the collection of Barbara Haviland.

## CONTEMPORARY CONCHOLOGY

by Walter Sage

Bits and Pieces this time: There have recently been a number of new and unusual shells available whose source is stated to be Russian trawlers working the northern and southern parts of the Indian Ocean. Among the materials available has been *Vasum stephanti* Emerson & Sage, 1988; *Marginella mirabilis* H. Adams, 1869, and *M. obtusa* Sowerby, 1846 (certainly distinct species); a volute offered as *Provocator pulcher* Watson, 1882, but which appears closer to *P. palliata* (Kaiser, 1977) [originally described under the genus *Zidona*]. To compound this puzzle, the true *P. pulcher* seems also to have been available; *Bufonaria fernandesi* Beu, 1977, and at least two undescribed species of *Conus*. Also from the Russian sources are some lovely trochons, many for which it is difficult to find the correct name. Here is an area for an eager researcher.

The Columbelloidea is a large family of smaller species, and is seldom a specialty of collectors. But for the discerning few who carefully scan price lists for the columbellid genus *Strombina*, there is a just-published review of the genus, by Peter Jung, listing 98 species, both Recent and fossil, with three living species in the Caribbean and 32 living in the eastern Pacific. New genera and subgenera have been introduced, and a wealth of information has been gathered in a single resource. It is **Revision of the Strombina-Group (Gastropoda: Columbelloidea), Fossil and Living. Distribution, Biostratigraphy, Systematics**. This 298 page hard cover publication is issued as Vol. III of Schweizerische Paleontologische Abhandlungen (Mémoires suisses de Paleontologie) by Birkhauser, Verlag, Basel, Switzerland, 1989.

## Delaware Museum of Natural History Award

The Department of Malacology of the Delaware Museum of Natural History announces the availability of the **1990 Jean Austin du Pont Memorial Award**. Eligible are all students involved in projects of systematic malacology, including recent postdoctoral researchers. The \$500.00 award provides support for a student conducting systematic studies of Mollusca (leading to publication) who requires access to collections, laboratory and library of the DMNH Department of Malacology. Funds can be used for travel, subsistence, and research costs. Applicants should submit a succinct research proposal (not exceeding two pages), a short CV, a budget outline with indications of any matching funds, and a supporting letter from faculty adviser(s). Application deadline is July 31, 1990. Apply to Department of Malacology, Delaware Museum of Natural History, P.O. Box 3937, Wilmington, DE 19807, U.S.A.

## NEW COA GRANTS

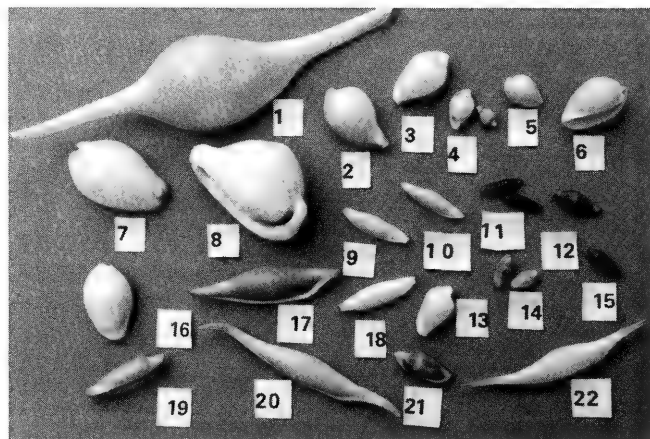
1990 mollusk research grants, up to \$1500.00 per application, are available to qualified persons undertaking recent or fossil laboratory or field research work. The deadline for applications is May 10, 1990. **Mail to Dr. R. Tucker Abbott, Grants Chairman, Conchologists of America, P.O. Box 2255, Melbourne, FL 32902-2255.**

Applicants must outline the proposed project, amounts and purposes for which the award will be used, including requested supplies, expendable equipment, living and/or travel expenses, or publication or illustration costs. Please submit a short biography, educational status or pertinent job experience, and a letter of recommendation from a scholastic or professional source. Awards are judged by the COA committee by June 1, and are made only to citizens or permanent residents of the Americas, and do not cover salaries, overhead, permanent equipment, conference, or meeting costs. If awarded, a brief written account, suitable for publication in **American Conchologist**, of the completed phase of the project is expected.

— Tucker Abbott, COA Grants Chairman

## CAIRNS FEATURE

The Cairns (Queensland, Australia) Shell Club Newsletter has a very interesting and useful feature — an ongoing review of the Queensland mollusks, one family or group at a time, complete with a color photo of that group. These photos are particularly clear, and the accompanying text, by Cairns Shell Club member and newsletter editor, Barb Collins, discusses the family in general and the addresses the Australian members, species by species, explaining color and form, as well as habitat and collecting notes. A most useful feature, it is one which anyone who collects Australian shells will find invaluable. The December 1989 family was the Ovulidae, accompanied by the above photo. **Cairns Shell Club, P.O. Box 1735, Cairns, Queensland, 4870, Australia.**



## 4-H AND AQUACULTURE

About 75 4-H members, ages 8 to 18, of Dixie County, Florida, are running their own aquaculture farm, growing clams and oysters off the coast of Suwanee. Intended to demonstrate to the community the benefits of aquaculture as an alternative method of harvesting clams and oysters, as well as to teach the children how to raise these mollusks, the project uses a method of aquaculture successfully used in China, but new to the United States.

In November, the 4-H members planted 500,000 clam seeds in plastic mesh, predator-deterrent bags anchored to pipes, and submerged them. Periodically, they must turn the bags to shake the barnacles off and must cleanse the system. The method, the Flexible Belt Oyster Grow-Out System, allows them to monitor and control the harvesting time of their clams. The animals, in a controlled environment, will grow faster than in nature, and the 4-H students can time their harvests to receive the best possible prices. Proceeds from the project will defray costs and benefit local 4-H clubs.

The project was developed at the Harbor Branch Oceanographic Institute in Apalachicola Bay and Indian River, and it is hoped that success of the project will lead to a means of supplementing the area's dwindling shellfish supply to keep pace with consumer demands.

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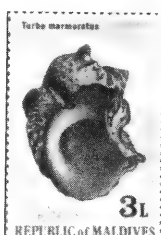
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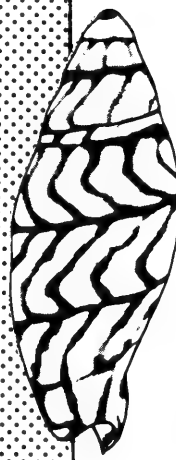
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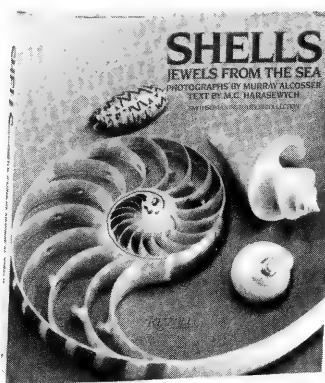
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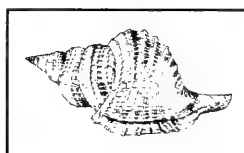
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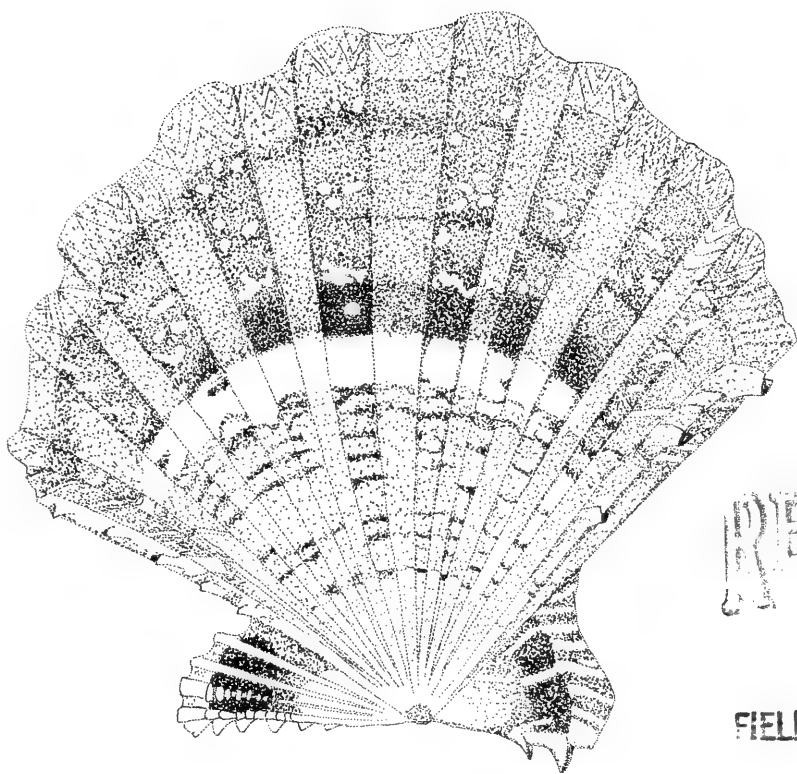
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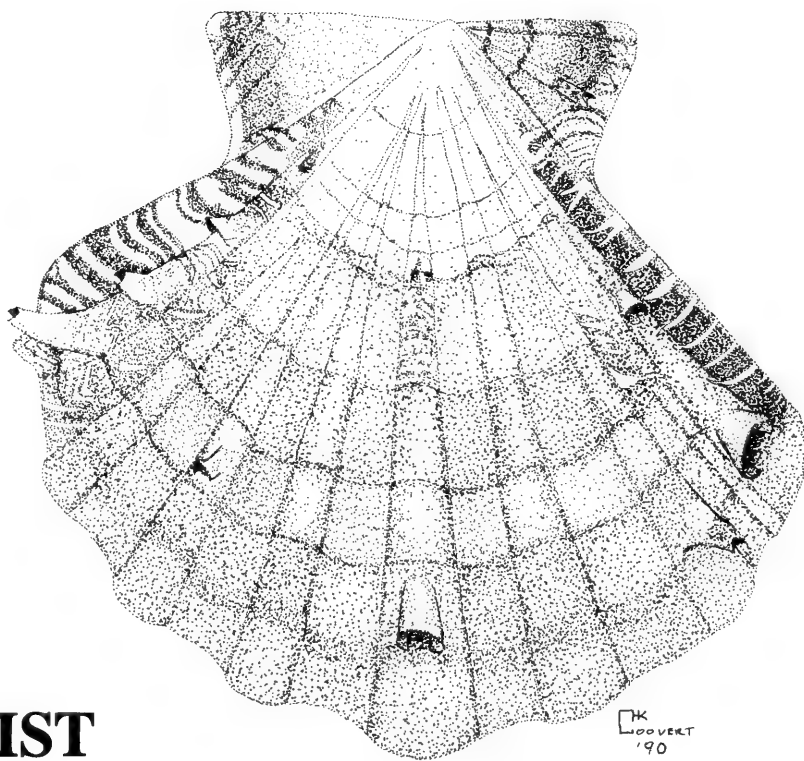
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 18, NO. 2

JUNE 1990



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — for amateur collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices, as well as advanced collectors, scientists and shell dealers from around the country and the world. An annual convention is held each year in a different part of the country.

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#### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January. INDIVIDUAL (per year) \$12.50; FAMILY & CLUB (receiving one AMERICAN CONCHOLOGIST) \$15.00; WESTERN HEMISPHERE (Air Mail Postage) \$20.00; OVERSEAS (Air Mail Postage) \$25.00. New members send check or money order to the MEMBERSHIP CHAIRPERSON Bobbie Houchin, 2644 Kings Highway, Louisville, KY 40205. Renewals are sent to the TREASURER. Back issues are available from Mrs. Houchin @ \$2.50.

COVER: Holly Coovert's ink drawing of the Indo-Pacific pecten, *Mirapecten mirificus* Reeve, 1855, form *thaunumi* Dall, Bartsch & Rehder, 1938. This pecten reaches about 1½".

## GREMLINS AGAIN!

COA recently moved our membership records and mailing list for American Conchologist to a new computer data base. This move will make the jobs of the Treasurer, Membership Chairman and Editor much easier in the future. However, the project was not without its snags. As a result of one of those snags, over 100 of you who had already paid your 1990 dues received your March 1990 American Conchologist in an envelope that was stamped in red: "THIS WILL BE YOUR LAST ISSUE UNTIL WE RECEIVE THIS YEAR'S DUES."

The flood of letters and photocopies of cancelled checks certainly made us aware of our error, and we apologize to you all. We have written letters of explanation to many of you. If you were one of the multitude who were wrongly red-stamped, and who did not write to us, but are worried about your membership status, we wish to reassure you...your membership records are up-to-date and correct. The mistake was in the mailing list only, and has been rectified. Computers are wonderful inventions, UNTIL something goes wrong! But, even then, we don't know how we'd do this job without ours.

## PRESIDENT'S MESSAGE

There's nothing more exciting to me than going in the field (that is, the water) and finding shells in their natural habitat. I enjoy not only the thrill of the hunt and the pride of ownership but also the challenge of seeing where and how each species lives. Sometimes, in a new area, I'll make bets with myself as to what I'll find in each habitat niche. I'm often surprised, and often wrong, but that's all the learning process.

In my years of collecting, I've found that mollusks reproduce in amazing numbers and can be found in amazing places — places we'd just as soon not go, or can't go. For instance, I've found Angel Wings near a sewer outfall, in the most polluted parts of the bay. Stressed populations of mollusks have been able to reestablish themselves when let alone: the Queen Conch in Florida is making a great comeback since collecting them has been banned, and there is talk of reestablishing limited collecting.

You can see I'm not sympathetic with environmental hysterics who'd like to ban all collecting of live shells in fear of wiping them out. On the other hand, I do like to practice sensible conservation. I was impressed on one shell club field trip to see a collector stop before getting in the boat and take out of his bucket six or seven large whelks. Laying them out on the sand bar, he examined each one, even scrubbing them with a brush he'd brought along, chose the best two, and put the others back in the water. (I'm proud to say that collector later became president of the COA.) I have been appalled by other collectors (not shell club members, thank goodness) who take 5-gallon buckets of live Olive shells to kill to make craft animals out of. One person finding a large whelk said, "This'll make a nice airplane!"

Many mollusks are found under rocks, which we must turn over to see what's there. We should always remember that many things live under the shelter of that rock too, and that some things live on top of it, in the sunshine. These organisms cannot survive in their opposite condition, and some can't even move to the other side of the rock. So it's important to turn the rock back to its original position after looking under it. I was gently reminded by the divemaster on one diving trip that my string bag, hanging from my belt, was catching on staghorn coral and overturning it. I left it behind on subsequent dives and have since found a smaller bag that doesn't drag.

Another need for practicing care is in the matter of eggs. Cowries, for instance, lay their eggs beneath rocks and stay there to tend them until they hatch. Overturning the rock and taking the parents may destroy a whole generation of lovely shells. Many mollusks come in to shallow water to lay their eggs and are easily collected at this time. This is a good opportunity to watch nature at work, learn, and leave the egg-layers to it.

It's no wonder that dive- and resort-operators all over the world gasp in horror at the words, "shell collector." We should offer them a better example of sensible collecting and conservation whenever possible. On one diving trip, having talked the divemaster into letting me collect shells, I came up with two Carrier shells (something he'd never noticed) and a pill bottle full of wonderful things less than an inch long. He was delighted; later he showed me a bay to snorkel, commenting, "There are Helmets in there," and welcomed my proposal to bring a group of collectors back next time.

Off my soapbox, I'll now say, "Thanks" for letting me be President of COA. This is a great organization, filled with some of my favorite people, and I've enjoyed this year. I look forward to the convention in Melbourne, where I'll see many of you again and have fun telling stories, hearing stories, seeing shells, and maybe even acquiring some. What an enriching hobby we have, and what delightful people indulge in it!

Shellingly,  
Peggy

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS.

## COUNTDOWN 1990. . . .

## MELBOURNE ALL SET TO BLAST OFF

by John Baker, COA Convention Co-Chairman 1990

A last minute report on Countdown 1990 — the COA Convention in Melbourne, Florida. First, we'll address those inevitable last minute problems, snags, changes, and corrections. For those of you who haven't registered yet, please read the instruction at the top of the registration form (enclosed in your March 1990 *American Conchologist*). The Welcome Party is part of your personal COA registration fee, but you must send advance payment of \$10.00 for any guests you may bring. You will find tickets for your guests inside your personal registration packet. All other events authorized for guests will be handled this way too. Don't forget, all guest tickets must be paid for in advance.

**A Correction:** on the registration form, under "Registration Fees," the correct amount due after July 3rd is **\$35.00**, not \$30.00.

Hotel registration forms should be sent directly to the hotel, **Holiday Inn Oceanfront**, and not to Doris Underwood. As of the date of this writing, if you use the 800 number, you can only register for July 9th thru the 13th, and not for extra days prior to or after the convention. Due to complications within the Holiday Inn's reservation system (the 800 number), they say the only change in this that we can anticipate prior to the convention is that they will change the 9th to the 8th. They have, however, promised to honor the rates quoted on the registration form as we have contracted with them. We can assure you, also, that there will be complementary transport from the airport to the Holiday Inn.

On **Optional Trips**, please do not send money for them with your reservation. We will contact you when final arrangements are made for these trips, and the price will be determined by the number wishing to attend. As for the **SeaEscape Six Hour Cruise**, the company recently suspended operations due to ship repairs, but they hope to have a new ship in service and resume operations early this summer. If the trip is available during the convention, we will contact those who have indicated their interest in this trip. If it falls through, there are other exciting activities which we will substitute. The Spaceport Trip is available on both Thursday, July 12 and Friday, July 13. As of the middle of April, the time of this writing, approximately 100 have registered for the convention. Bourse tables are going very fast, and

are not likely to be available by the time you read this.

Now for some good news! The Convention Committee is most pleased to announce that **S. Peter Dance**, famous author of many books and papers on shells, will travel from his home in England to attend our convention and to be our banquet speaker. The title of his presentation will be, "**To Find a Foreign Lady**," a discussion of shelling in Oman and Masirah Island. I'm sure many of you have some of his books, and the convention will be a great time to have them autographed.

While we have already received some nice things for the **auctions and door prizes**, we can certainly use more. Auction proceeds are used to fund the many grants and projects that COA sponsors, so the more money we can raise through our auctions and raffles, the more worthwhile projects and individuals we can assist. If you can send your donations ahead, it will be a great help to the auction committee, but if you can't, then just bring them along with you they'll be welcome at any time.

We urge all **COA Club Representatives** to encourage attendance among your club members at this year's Convention. It is sure to be a great one, probably the biggest ever, and your members won't want to miss it. Also, Reps, please let us know on your registration form that you are your club's official Club Representative so that we can identify you on your convention badge and make plans for you to attend Wednesday morning's **Club Rep Breakfast**. At the breakfast, you will have an opportunity to meet our hard-working COA sponsor, **Vice President Hank Foglino**, who will enlighten us about our role with COA and tell us when other working meetings are scheduled during the convention.

From all indications, the programs we have scheduled will be very high calibre, at least as good as our greats of past conventions, and we have some new speakers lined up as well, all set to spark your interest and renew your enthusiasm in shell collecting. Let's get with it! **Register today!**

\*147 Hedgegrove Avenue, Satellite Beach, FL 32937-2113.

## SCALLOPS I HAVE KNOWN

by Peggy Williams

## The Lion's Paw

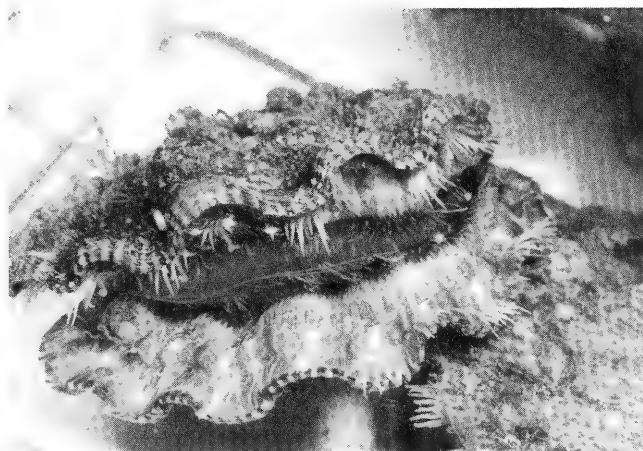
Remember how the third grade teacher used to read to you after lunch? Mine read a story called "The Lion's Paw." I was fascinated with the idea of finding that shell, and I still am!

The first "Lion's Paw," *Nodipecten nodosus* (Linné 1758) I ever saw in the "wild" wasn't, unfortunately, found by me. Just after I'd begun to SCUBA dive, on one of my first deep dives, one of the other divers found it. I was livid with jealousy. We took a picture of it down there, showing his depth gauge at 100'.

Since then, I have found several Lion's Paws, three at once on a single dive. Two were inside basket sponges, so you can bet I check sponges carefully. The time I found three, my buddy and I were diving a ledge at 90' off Bradenton, Florida. She found one too, and was delighted because it was her first. I put mine in my closable string bag, and she put hers in her vest pocket. The pocket, however, had two openings, and the scallop swam out as she was ascending!

## Scalloping at Tarpon Springs

Back in the early 1970's, we made several trips during "scallop season" (spring) to Anclote Anchorage, off Tarpon Springs. The Bay Scallops, *Argopecten irradians concentricus* (Say, 1822), would be

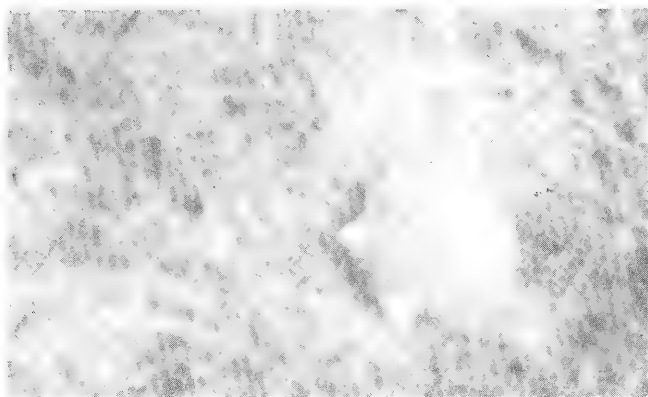


*Nodipecten nodosus*

photos by Peggy Williams

in the bay in huge numbers, almost invisible against the turtle grass in 2-10' of water (that bay doesn't get any deeper than that). The first years we went, there weren't many other people there, and we'd an-





*Argopecten irradians concentricus* on turtle grass.

chor in one place, snorkel to gather scallops, and move to another if we felt like it. I once collected 18 in one breath, scooping them into a string bag attached to my belt. We'd often bring along a non-snorkeler to sit in the boat and clean the scallops as we brought them up, but we learned not to dump the guts overboard because the scent would attract scallop predators like sea stars. We did occasionally get drill shells, *Urosalpinx perrugata* (Conrad, 1846) on the scallops.

Bay Scallops have one dark brown/green valve and one white one (there are occasional rare orange or yellow shells). Resting on the bottom, white side down, they show the dark side against the turtle grass. I should have called the color "turtle grass brown" — they're very well camouflaged. They can swim, and have actually escaped me, by clapping the shells together, causing a jet of water to burst out, propelling them backward in uncoordinated jerks, several feet at a time. When swimming, they present their white side to anything swimming under them, so viewed against the bright sky above, they're hard to see from below too.

I haven't heard of good scalloping in Tarpon Springs for some years now. The last time we went the bay was so crowded with boats that we couldn't find a good place to anchor, and it wasn't much fun. I'm sure the pressure of so much collecting (everyone would get garbage cansful) was super hard on the population.

My dad tells about a scallop bed that once existed in Sarasota Bay. Long since covered by a fill island, it's the site of some of the most expensive homes in Sarasota.

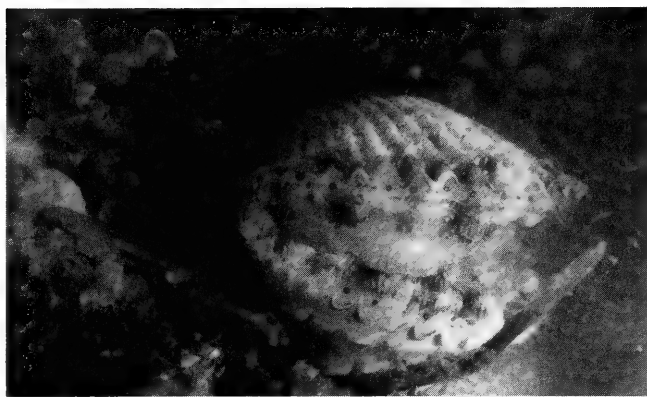
#### Calico Heaven

We used to dive off Sarasota/Bradenton without sophisticated electronic gear, so that it was difficult to find a reef. Sometimes we'd put a diver down, holding the anchor rope, and pull him gently across the bottom. He'd signal if he found an interesting dive site. I love to do this, because I'd just as soon dive on sand (there are shells there, too) as on a reef, where spearfishermen want to be.

Once on a "drag dive" I crossed an extensive area of shelly rubble that was covered with pinkish purple algae. This isn't a high plant or anything — it just looks like someone threw a bucket of purple paint over everything. I began to notice some roundish shapes lying on the bottom here and there and realized they were Calico Scallops, *Argopecten gibbus* (Linné 1758). Usually mottled purple on their upper valves, they were well camouflaged. I ended up with a bagful, enough for my family's supper! I also found several dead pen shells covered with chitons and several Chestnut Turbans, *Turbo castanea* Gmelin, 1798. (There are Chestnut Turbans at Anclote Anchorage, too. Coincidence?)

#### Caribbean Flats

Off Venice, reefs are shallower (about 30') and easier to find without electronics. I used to occasionally find a flat scallop valve, and, once or twice, both sides of a *Pecten raveneli* Dall, 1898. Years later, in the sand atop a reef, I saw a movement and realized it was a pecten. Moving it, I watched as it clapped its valves together, settled, and with one more clap, billowed sand up around it, nearly covering the shell. There it was, flat top valve level with the sand, convex lower valve buried and invisible. You'd think, with this triumphant obser-



*Argopecten gibbus*

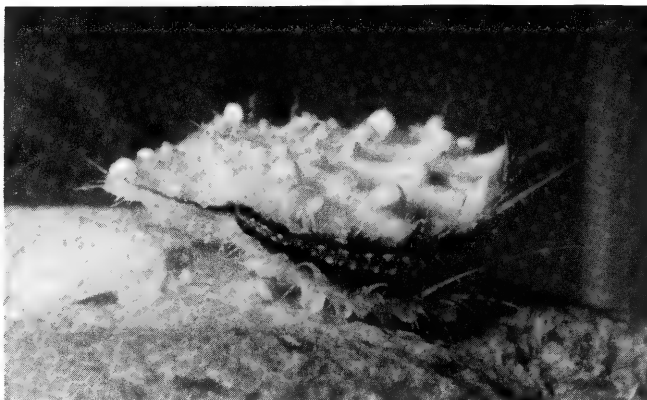
vation of the natural attitude of the critter, I'd find more, right? Wrong. That's the only live scallop in the genus *Pecten* I've collected.

#### Holding On

Scallops of the genus *Chlamys* are generally found on the under side of rocks, hanging on with a byssus, and pretty tightly, too! They can let this byssus go, move, and make a new one in a new spot if need be. The byssus is a series of threads secreted by the animal and fitting through the "byssal notch" (notice that the "wings" on both valves aren't the same — this makes room for the byssus). It's sticky at first; attached to a rock or the substrate, it hardens.

Most of the *Chlamys* I've found are *Chlamys sentis* (Reeve, 1853), commonly in shallow reef areas in the Florida Keys. Other species are common in other parts of the Caribbean. One of the tiniest is *Chlamys benedicti* (Verrill & Bush, 1897), usually under ¼" across, and generally has a yellow spot at the umbone, between the wings of the shell.

Diving at a beautiful sea mount between the Honduran coast and Roatan Island, I didn't find many shells — but I did find a large *Chlamys* species, nearly white, about an inch across. I didn't realize until I was ashore that it has a yellow spot — the largest *benedicti* I've seen.



*Chlamys imbricatus*

#### Ol' Blue Eyes

Scallops have eyes, lots of them. These aren't really eyes as we know them, but they can sense light and dark, and will shut their valves if a shadow passes over them. This is especially helpful to the species that live lying loose on the bottom, like Bay Scallops. The eyes are located at the scalloped edge of the shell, one or more per dip of the edge, so they appear to peek out at you. There are also various feathery "feelers" along the aperture, sometimes of two or three different lengths. The eyes of most scallops I have seen are blue and the animal colored with bright oranges, blues and blacks. The animal of the Knobby Scallop, *Chlamys imbricata* (Gmelin, 1791), however, is black as a starry night, with white flecks and bright red eyes.

# AN INTRODUCTION TO THE STUDY OF SCALLOPS

by Gary A. Coover

The scallops are an attractive, usually highly colorful group of shells. Consequently, they are popular among collectors, but they are difficult to study because, generally speaking, the classification is still largely in a state of confusion. Species limits are not settled in many cases, and the assignment of genera is in a worse state. Study of this family is greatly hindered by the lack of up-to-date, comprehensive information. As in any study of this type, mastery of the terminology is a primary prerequisite. This article will concentrate on a discussion of the terminology used in the study of these shells. But the main purpose of this article is to stimulate more interest and study in this very interesting family of bivalves. And having a deeper understanding of the structure of these shells will hopefully add to a collector's appreciation of this group of mollusks.

First of all, we should notice that the entire group has now been divided into three families. The family Pectinidae comprises the true scallops, characterized by normally opaque or semitranslucent shells which are often very brightly colored. These animals attach themselves to the bottom (usually under rocks) by means of a byssus, a group of tough, elastic threads secreted by the foot. The byssus is an adaptation of major importance, resulting in a number of features that are very useful in identification and classification. When they mature, many of the byssally attached species lose their byssus and become free-swimming. In a few cases, these animals lodge themselves in coral crevices where they become somewhat misshapen. Others cement themselves to the substrate. The glass scallops, comprising the families Propeamussiidae and Entoliidae, are deep-water animals characterized by much thinner, translucent shells. These animals are free-swimming or are byssally attached, but lack the ctenolium, a series of teeth which serve to separate the byssal threads. They may have a single tooth called a pseudoctenolium. The Propeamussiidae are extremely unusual among the bivalves in that they are carnivorous, clamping down and feeding upon small invertebrates rather than relying solely upon filtering the water for food like other bivalves.

Before beginning the study of scallop shells, the first thing you need to do is to obtain a strong magnifier — at least 15X. A binocular dissecting microscope is even better. It will open up a whole new world of beautiful microsculpture which goes beyond the other obvious aesthetic attributes of these shells.

Of primary importance is the ability to quickly differentiate a right valve from a left valve. This should become automatic. Then some of the important terms should be mastered. Thus, the subject of orientation will be covered first, followed by a glossary of important terms used in the study of scallop shells.

Scallops, like all other bivalves, are oriented with the hinge line as the dorsal or top surface of the animal. This does not mean that the living animal is oriented this way. In fact, scallops rest with one of the valves (normally the right valve) lying on the bottom. The free edges of the valves, opposite from the hinge line, are the ventral part of the animal. The front, or anterior, end is recognizable by the byssal notch. The opposite end is the posterior (the muscle scar is located posteriorly inside). The anterior and posterior edges of the shell are termed the lateral margins. The two valves are either a right valve (RV) or left valve (LV). The left valve in some sources is referred to as the "upper" one, since this is the usual orientation in life, and the opposite valve is the "lower." This is anatomically incorrect, so the terms "right valve" and "left valve" should be used. (The flounder also lies on its side, but it would be incorrect to abandon the use of "right" and "left" in reference to the fish.) To determine which valve is which, hold an articulated pair (valves attached) in both hands with the hinge straight up, and the byssal notch pointing directly forward.

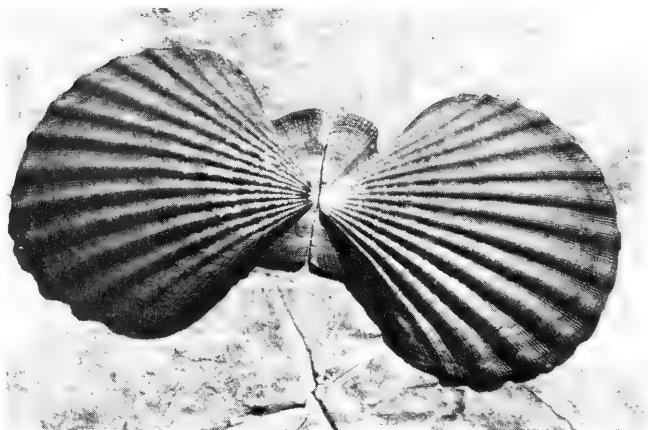


photo by Pete Carmichael

*Nodipecten magnificus* from off Santa Cruz, Galapagos (Vi Hertweck).

The RV is in your right hand, the LV in your left. The RV is very frequently distinctly paler than the LV, often entirely white.

What follows is a glossary of the most important terms used in the study of scallop shells.

**Auricle:** anterior and posterior extensions of a valve along its dorsal (hinge) margin; also referred to as "ear" or "wing" and quite characteristic of scallops.

**Auricular crura:** elongate, narrow ridges on the interior of the auricles between the junction of the disk margin and the auricle; often ending in an auricular denticle.

**Auricular denticle:** a bump or protuberance on the interior of the valve near the junction of the disk margin and the free margin of the auricle.

**Byssal fasciole:** a shallow, narrow to wide groove variously differentiated on the right anterior auricle formed by past positions of the byssal notch.

**Byssal notch:** the indentation on the anterior margin of the right valve just below the auricle.

**Byssal sinus:** the indentation on the anterior margin of the left valve just below the auricle.

**Camptonectes microsculpture:** fine, diverging striae on the external surface of the disk (magnification required to see this plainly). [e.g., *Palliolum*]

**Cardinal crura:** ridges on the interior of the hinge plate beginning on each side of the point of origin and usually diverging out towards the ends of the auricles.

**Concentric** (= commarginal): shell features which are parallel to the shell margins.

**Ctenolium:** the comb-like row of teeth along the ventral edge of the byssal notch.

**Disk:** the main part of the valve.

**Gape:** an opening or gap between the free margins of opposed valves; various gapes present or absent in different genera, and thus of taxonomic importance.

**Anterior/posterior (disk) gape:** an opening on the anterodorsal or posterodorsal ends between the free edges of the disks.

**Auricular gape:** found on the free (anterior and posterior) ends of the auricles.

**Byssal gape:** an opening in the area of the byssal notch, for the byssus or elastic threads used to anchor the scallop.

**Internal radial lirae** (ribs): internal radial sculptural features (narrow ridges) not corrugating the shell [e.g., *Amusium*, *Propeamussium*, *Parvamussium*].

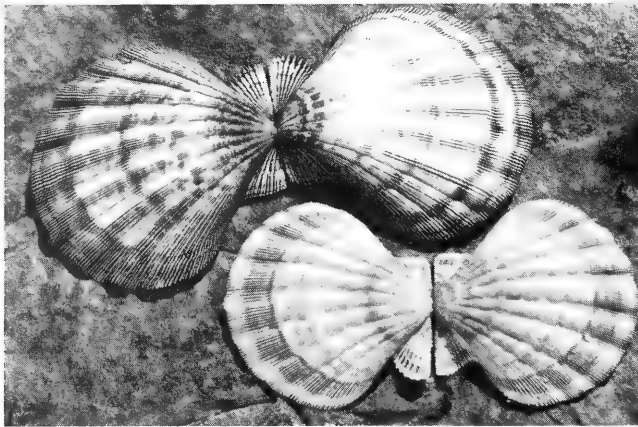


photo by Pete Carmichael

*Nodipecten subnodosa* from the Gulf of California (Vi Hertweck).

**Lamellar sculpturing:** thin ridges usually regular in height and very regular in intervals, but most importantly, normally continuous across ribs and down across valleys. Usually very low to extremely fine and thread-like and often densely packed [e.g., *Annachlamys*, *Somalipecten*]. Extremely fine lamellar sculpturing could be termed concentric striae. Strongly produced, thin, plate-like sculpturing lying between ribs [e.g., *Nodipecten*], or on the sides of ribs [e.g., *Argopecten*] is an extreme development of concentric lamellar sculpturing. Lamellar sculpturing can be mostly worn and obscure or absent in some cases. [Thus it is important not to use overly cleaned or worn specimens for identification or study.]

**Pseudoctenolium:** the false, single, toothed ctenolium found in some glass scallops.

**Radial:** shell features that radiate out from the point of origin; perpendicular to the midventral shell margins and nearly parallel to the disk flank margins.

**Radial costae:** radial sculptural features limited to the exterior of the shell and thus not corrugating the shell.

**Radial ribs (= plicae):** radial sculptural features which corrugate the entire shell thickness, seen especially at the ventral margin (where they interlock on opposing valves) and as furrows or grooves internally.

**Radial riblets:** radial sculptural features which corrugate the entire shell thickness, at least on the ventral edges, but are much finer and are usually in addition to radial ribs (Primary riblets are the earliest formed; secondary riblets appear later due to

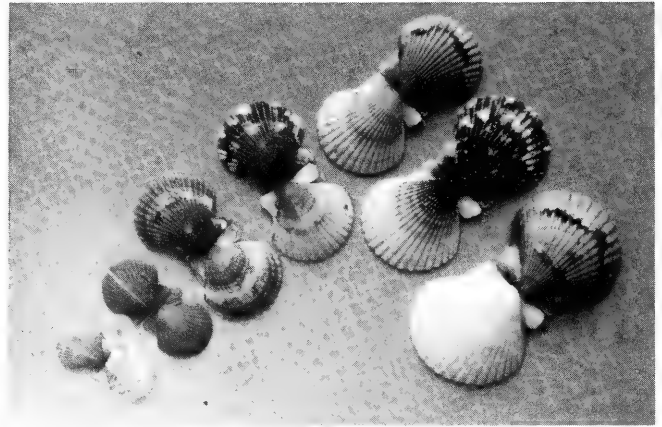


photo by Vi Hertweck

*Argopecten gibbus* from Lido Key, Sarasota, Florida after a storm.

bifurcation or as new riblets arising later between the primary riblets.).

**Radial striae (= threads):** radial sculptural features like costae but much thinner.

**Resilium:** the part of the hinge which helps the valves to open when the scallop is alive: usually nearly black.

**Scabrous:** referring to a sculpture of raised, separate, narrow projections which are usually not regular in height; may be in very regular intervals but can be randomly scattered; not continuous down sides of ribs and across valleys; found on tops of ribs and in radial rows between ribs [e.g., most *Chlamys*].

**Scaly sculpturing:** strongly produced, tall, thin, plate-like sculpturing lying on the tops of ribs; this can be an extreme development of either scabrous [e.g., large *Chlamys senatorius*] or lamellar sculpturing [e.g., *Gloripallium*] (note the presence of typical small, narrow, scabrous sculpturing between these rows of large, plate-like scales or extremely fine lamellae often on the scales themselves). These may have curved-in ventral edges; in an extreme development, these recurve against themselves forming hollow (blister-like) vesicles [e.g. *Excellichlamys spectabilis*] or form rounded, completely closed nodules [e.g., *Chlamys imbricata*]. (Scales are known as squamae).

**Shagreen microsculpture:** a screen-like or mesh-like pattern on the external surface of the disk composed of fine lamellae with diamond-shaped openings (magnification required to see this plainly) [e.g., *Manupecten*, *Semipallium*].

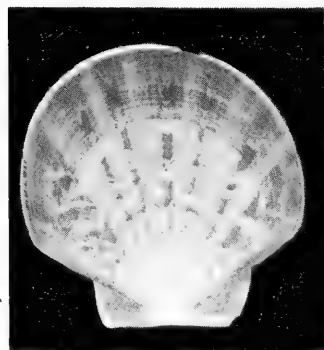


Thad Brzana and the COA Trophy-winning bivalve exhibit he and his wife Marian did for the Crown Point Shell Show last September. Our congratulations to both the Brzanas.

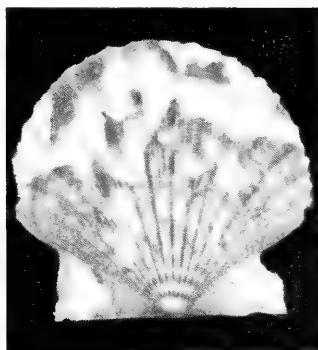


Our congratulations to Betty M. Lawson of Naples for her COA Trophy winning exhibit at the St. Petersburg Shell Show, New Zealand Mollusca. On the right is judge Gary Rosenberg.

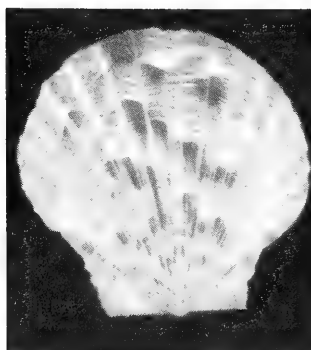




*Amussium laurenti* (Gmelin, 1791). 75mm. 20 fms. Colon, Panama.



*Leptopecten leucophaeus* (Reeve, 1852). 30mm. 30 fms. in mud. Panama/Colombia.



*Aequipecten lineolaris* (Lamarck, 1819). 46mm. 30 fms. in mud. Colon, Panama.



*Chlamys noronhensis* E. A. Smith, 1885. 14mm. 30 fms. in mud. Panama/Colombia.

## THE PECTINIDAE OF THE CARIBBEAN COAST OF PANAMA

by Michael Cahill

The Caribbean coast of Panama is a rich faunal area supporting many species from the family Pectinidae. There have been two studies published on the recent species of mollusks from this area. First was Olsson and McGinty's "Recent Marine Mollusks from the Caribbean Coast of Panama with a Description of Some New Genera and Species." This work dealt primarily with two collection sites, Bocas Del Toro, an area along the northern border with Costa Rica, and Colon to the southeast. Six species of Pectinidae were reported by the authors, mostly from the Colon area. Some eleven years later, George Radwin published "A Recent Molluscan Fauna from the Caribbean Coast of Southeastern Panama." This publication was also based on material collected from the Colon area, listing eight species of Pectinidae, four of which were previously reported by Olsson and McGinty.

### OLSSON & MCGINTY

1. *Pecten ziczac*
2. *Aequipecten muscosus*
3. *Chlamys imbricata*
4. *Chlamys mildredae*
5. *Chlamys sentis*
6. *Lyropecten antillarum*

### RADWIN

1. "*Pecten*" *laurenti*
2. "*Pecten*" *muscosus*
3. "*Pecten*" *fuscopurpureus*
4. "*Pecten*" *antillarum*
5. *Nodipecten nodosus*
6. *Chlamys sentis*
7. *Chlamys imbricata*
8. *Argopecten nucleus*

Thus we see the family to be well established in both accounts. Through the generosity of Mr. Leonard Hill of Miami, I recently obtained a collection of pectens from the Caribbean coast, which supplemented numerous species already in my study collection. Three faunal areas are herein reported, including Colon, San Blas Islands, and deeper water 100 meters from the Panama-Colombia border. All but two of the species previously reported are reaffirmed.

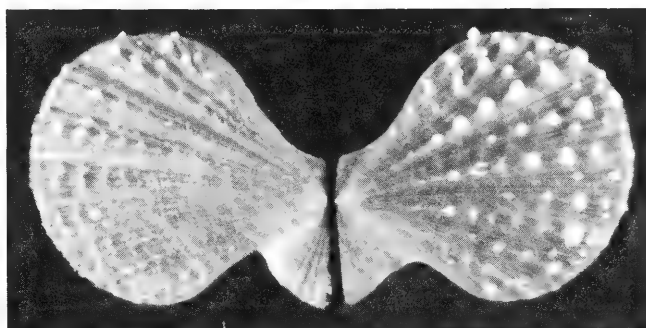
The Pectinidae from the three faunal areas include:

- |  |  |
|--|--|
| 1. <i>Pecten ziczac</i> (Linné, 1758)            | 9. <i>Argopecten nucleus</i> (Born, 1778)            |
| 2. <i>Pecten chazaliei</i> Dautzenberg, 1900     | 10. <i>Argopecten gibbus</i> (Linné, 1758)           |
| 3. <i>Amussium laurenti</i> (Gmelin, 1791)       | 11. <i>Argopecten noronhensis</i> (E.A. Smith, 1885) |
| 4. <i>Aequipecten acanthodes</i> (Dall, 1925)    | 12. <i>Leptopecten leucophaeus</i> (Reeve, 1852)     |
| 5. <i>Aequipecten lineolaris</i> (Lamarck, 1819) | 13. <i>Leptopecten bavayi</i> (Dautzenberg, 1900)    |
| 6. <i>Chlamys sentis</i> (Reeve, 1853)           | 14. <i>Lyropecten antillarum</i> (Récluz, 1853)      |
| 7. <i>Chlamys imbricata</i> (Gmelin, 1791)       | 15. <i>Nodipecten nodosus</i> (Linné, 1758)          |
| 8. <i>Chlamys multiscumata</i> (Dunker, 1864)    |  |

This list greatly increases the number of known Pectinidae from Panama, but there are some discrepancies, as well. Some speculation is in order. First, it is possible that Radwin's reference to "*Pecten*" *fuscopurpureus* Conrad, 1837 refers to *Aequipecten acanthodes*. This may also be the case for *Aequipecten muscosus* (Wood, 1828).

Olsson and McGinty's reference to *Chlamys mildredae* (F.M. Bayer, 1943) appears perplexing because of the obvious disjunction of populations. There is no confirmed report of this species further south than

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*Chlamys imbricata* (Gmelin, 1791). 40mm. 1 fm. San Blas Islands, Panama.

the Florida Keys. The fact that they also listed the other two species with which it might be confused, *Chlamys sentis* and *Chlamys imbricata*, further complicated this sighting; obviously, the species referred to as *Chlamys mildredae* must have differed from both *Chlamys sentis* and *Chlamys imbricata*. In 1941 when Bayer first recognized this pecten, it was as a variety of *Chlamys imbricata*. The description of *Pecten* (*Chlamys*) *imbricatus* var. *mildredae* listed "brilliant red flecked with white" as a characteristic, as well as "cupped scales" and a "yellow and purple interior." In 1943 Bayer elevated the variety to a full species rank and reiterated "brilliant red" as a color form.

This mystery was finally solved in 1984 when I received five specimens of a brilliant red variety of *Chlamys imbricata* which were discovered in the San Blas Islands. Juvenile specimens have elongated, slightly cupped scales and the interior is characteristically stained yellow. A mature specimen such as pictured herein is brilliant red on both valves with stark white cupped scales. Olsson and McGinty's specimen must have been this very unusual color form of *Chlamys*



Compare this 70mm. *Amussium laurenti* from off the Dry Tortugas (30 meters in sand) to the Panamic form above.



*imbricata* — an excellent testimonial to the unreliability of color as a species determinant for the Pectinidae.

Noteworthy in the present species list are the uncommon *Argopecten noronhensis*, *Chlamys multisquamata* and *Leptopecten bavayi*; their discovery in Panama constitutes a range extension for these species. In addition to the red and white *Chlamys imbricata*, several other species exhibit unique forms or characteristics when found in Panamic waters. *Amussium laurenti* from Panama are extremely dark mahogany brown, and also intricately patterned. *Aequipecten lineolaris* attain a larger average size there, in excess of 50mm, with the characteristic lined pattern more pronounced and a very dark red-brown. Lastly, *Argopecten gibbus* from Panama and along the northern coast of South America has reduced auricles and is much more inflated than the northern form.

The known species thus increase from eight to fifteen, and the *Chlamys mildredae* citing is perhaps clarified. Future collecting in this interesting area may further expand our understanding of the Pectinidae of the Southwest Caribbean Province.

#### REFERENCES:

- Bayer, T., 1941, Notes on Florida Mollusca, with descriptions of two new varieties. *The Nautilus* 55(2):46.  
 —, 1943, Observations on marine mollusca, with descriptions of new species. *The Nautilus*, 56(4):110.  
 Olsson, A.A., and T.L. McGinty, 1958, Recent marine mollusks from the Caribbean coast of Panama with description of some new genera and species, *Bull. Amer. Paleontol.* 39, p.5-58.  
 Radwin, G.E., 1969, A recent molluscan fauna from the Caribbean coast of south-eastern Panama, *Trans. San Diego Soc. Nat. Hist.* 15(14):229-236.

## OUR COA CLUBS — A CLOSER LOOK: The Georgia Shell Club, Inc.

It was in June of 1972 that the Georgia Shell Club was originally organized under the direction of Henry Close and Gary Gordon; thirty people attended that first meeting, held at the home of Mr. Close. As the years passed, the club grew, and Atlanta was eventually picked as the location of future meetings, since it was the most central location in the state for the membership to reach. On April 27, 1979, the club was incorporated under the laws of the State of Georgia.

In February of 1979, the club held their first shell show at the Fernbank Science Center in Atlanta and members were amazed at the overwhelming attendance; some people waited in line for over two hours to gain entrance. Encouraged by such a response, the club decided to make their shell show an annual event.

Their second shell show was moved forward to the end of March the following year so that visitors might enjoy Atlanta in all its spring glory. After the breakdown of the shell show, a freak ice storm hit and stranded the visitors for two days!

Since then, the shell shows have been held each spring after Easter in various shopping malls in the Atlanta area. The malls, of course, have provided not only more traffic for the shows, but also space enough to allow more dealers to attend. All shell show expenses have to be borne by the club's treasury, so the members have many fund-raising events during the year — yard sales, cook sales, craft sales, and others.

In 1985 the club decided to launch an all-out effort to establish a state shell for Georgia. Kay Reissing headed the committee. Under her guidance a coastal state representative was contacted about the proposal, each club member wrote a letter to his or her representative explaining why Georgia should have a state shell, and the club members even raided their collections to place a specimen of the proposed shell on the desk of each representative. The bill was finally introduced in the state legislature two years later. Finally, on April 19, 1897, *Busycon carica* (Gmelin, 1791) became the state shell of Georgia.

The club now has a new pin: a round, one-inch cloisonnnpin with the club's whelk logo on it. New pins will be on sale at the COA

convention. The membership ranges from nine to ninety; they collect recent and fossil marine shells, land and fresh water shells, and publications, and some create shellcraft. These varied interests make for lively meetings.

Today, if you are in Atlanta, Georgia on the third Saturday of any month from September through May, be sure to go to the East Marietta Library on Lower Roswell Road out in Marietta for a meeting of the Georgia Shell Club. You will be welcomed with such warmth and genuine Southern hospitality that you will want to join immediately. Dues are \$10.00, single or family, payable to John Cramer, 2778 Winding Lane, Atlanta, Georgia 30319.

— NANCY GILFILLAN

*Since this article was written, a real tragedy has occurred at the Georgia Shell Show. Our sympathies go out to the fine people of the Georgia Shell Club who work so hard to make this great show a success every year. We hope their experience can benefit all clubs by making them aware of the dangers inherent in shell shows and encouraging them to take preventative measures to avert a similar disaster at their own shows. It could have happened anywhere.*

## GEORGIA SHELL SHOW SUFFERS THEFT

The Georgia Shell Club suffered a major theft at our recent Mall Shell Show, our first theft of shells ever. Thirty five shells were stolen from three exhibitors' cases during the time when most exhibitors had already left the area, judging was to begin, and the mall was opening. All clubs may wish to beef up their security during this time when cases are most vulnerable. Two of the exhibitors had the new glass-fronted cases; the thief had only to raise the glass to make a sweep or remove what he wanted. Since the new cases are so prone to easy access, we urge you who own them to devise some way of locking them before you next exhibit — We're going to! Furthermore, the third exhibitor had cases with a hasp-and-lock front but had used hooks instead of locks because cases are traditionally unlocked during judging; the hooks were swept aside. Perhaps it's time to rethink judging rules and customs so that exhibitors can retain control of their cases at all times.

Our love and prayers go out to Rene Beeler in her fight against cancer.

## THE GRAND STRAND SHELL CLUB

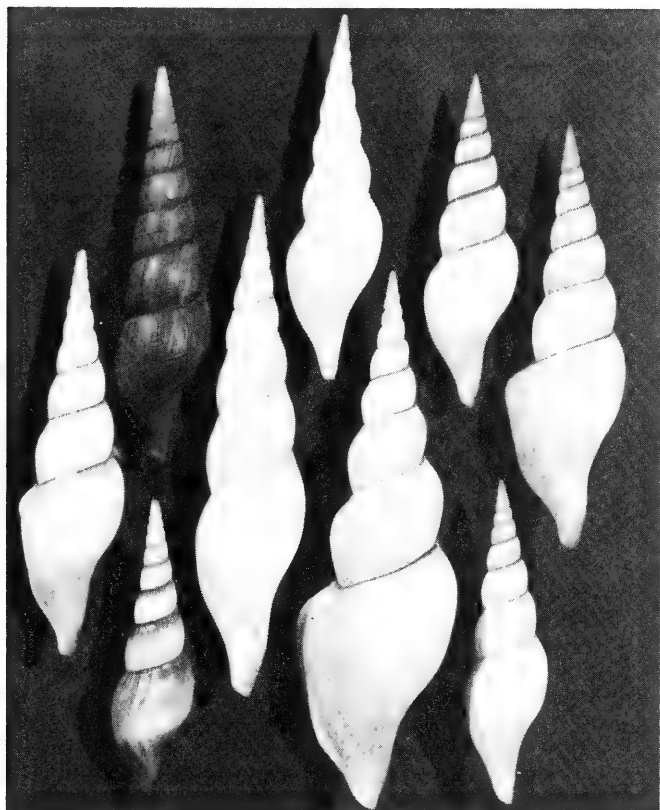
A new shell club, the Grand Strand Shell Club, is forming in South Carolina, under the guidance of former Long Island sheller, Bud Laning. 53 people attended their organizational meeting. Good Luck, Grand Strand!!

## ATSC Cancels 1991 Shell Show

Due to impending exhaustion brought on by the expected hoards of COA Convention-goers in Melbourne this year, members of the 1990 COA Host Club, Astronaut Trail Shell Club, have decided to cancel their 1991 shell show. We'll miss them on the shell show circuit next year, but know they need time to regroup and will see them for sure in January 1992. Thanks from all of us, ATSC!

# On the Genus *Teramachia* in Australian and Adjacent Waters.

by Harald Douté

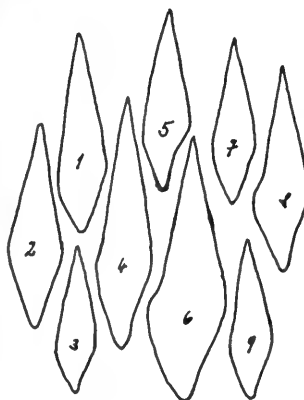


Until the 1985 publication of *Teramachia dupreyae* Emerson, the volutid genus, *Teramachia* (see note) was restricted to deep waters off Japan, Taiwan, and the Philippines, with a single Atlantic species in Cuban waters.

Generally, specimens of *Teramachia* belong to the category of seashells considered hardest to obtain. The simple reason for their seeming "rarity" is their deep water habitat.

With all deep water species, initial discovery and subsequent studies

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**AUSTRALIAN TERAMACHIAS** — 1. *T. dalli claydoni*, 150mm. 2. *T. dupreyae*, Arafura form, 158mm. 3. *T. dupreyae*, Arafura form, 117mm. 4. *T. dupreyae*, 190mm. 5. *T. dupreyae*, 136mm. 6. *T. dupreyae*, 203mm. 7. *T. dupreyae* Busselton form, 125mm. 8. *T. dupreyae* Busselton form, 165mm. 9. *T. dupreyae* Busselton form, 122mm.

of new finds are largely dependent upon the activities of various fisheries. Shrimp trawling trips by Australian entrepreneurs in waters off Western Australia and the Northern Territory have brought to light new localities for *Teramachia*. One is off Port Hedland, Western Australia on the Northwest Shelf; one is far to the south off Busselton, Western Australia; and one is to the north off Port Darwin, Northern Territory, in the Arafura Sea near Kapulauan Tanimbar. The specimens of *Teramachia* from these localities were trawled at depths between 300 and 450 meters.

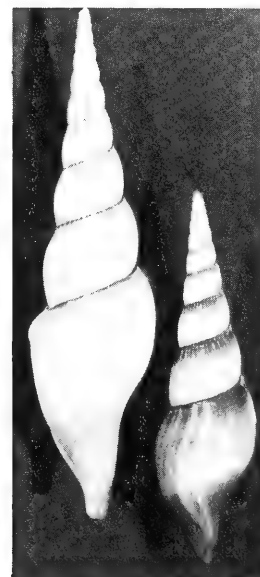
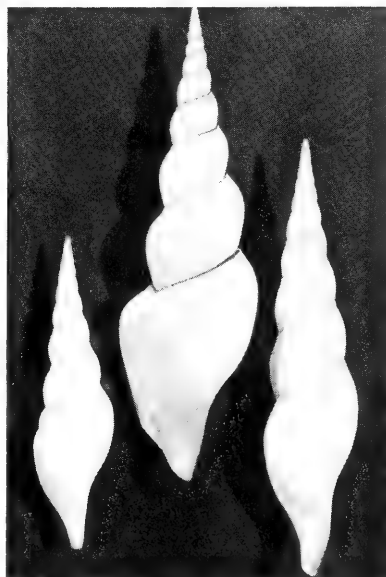
Except for the subspecies *T. dalli claydoni* Poppe, 1986 (see **Informations Scientifiques de la Société Belge de Malacologie**, Vol. 1) all specimens of *Teramachia* from these three Australian areas appear conspecific with *T. dupreyae* Emerson, 1985. There is considerable variation in the color, sculpture and size of specimens, but additional material is needed before meaningful comparative studies can be undertaken. It is conceivable that all the Australian *Teramachia* with the exception of *T. dalli claydoni* are isolated population variants of *T. dupreyae*. Discovery of additional *Teramachia* populations from other areas around Australia is likely. Indeed, recent finds off New Caledonia indicate that this genus may occur off Indonesia and New Guinea as well.

Note: The classification of *Teramachia* within the Volutidae remains a subject for controversy among some malacologists. For now, we do not question placement within the Volutidae.

## REFERENCE:

Emerson, W.K. 1985. *Teramachia dupreyae* new species, from off Western Australia (Gastropoda: Volutidae). *The Nautilus* 99(4):102-107.

**LEFT TO RIGHT:** *Teramachia dalli claydoni*; 3 specimens of *Teramachia dupreyae* (note shell dimorphism); 3 specimens of *Teramachia dupreyae*, Busselton form; 2 specimens of *Teramachia dupreyae* Arafura form.



## PALAU REVISITED

by Emilio García

I was snorkeling in the remote Rock Islands of Palau in an ideal situation, in perfectly calm, perfectly clear shallow water. Our group had been so careful about turning rocks back that I was sure the one ahead of me, although it looked innocently undisturbed, had already been inspected by one of my shelling partners. There was a hard bottom, covered with a thin layer of fine sand, and loose coral heads of different sizes sprinkled the area. I approached this particular rock without my usual enthusiasm. It was such an obviously "good" rock, and right in the middle of the path which, two hours ago, all of us had taken to enter the area.

I had lifted the rock only a few inches when I saw the shell, barely buried in the thin layer of sand, and recognized it right away. I did not touch it. I finished turning the rock, got on my feet, took off my mask and started shouting to all who could listen. No, it wasn't anything very rare in the strict sense, but it was to me because I had

never collected it before, and what can top that? It was a large, beautifully clean live-collected *Naquetia triquetra* (Born, 1778).

This was my second trip to Palau, now officially chosen as one of the eight wonders of the natural world, and I had been so impressed that first trip with its natural beauty, uniqueness and richness of marine life, that I was very much looking forward to this second trip.

The Palau Islands, known to the natives as "Belau," are located about 400 miles north of the Equator and are part of the "Pacific Ring of Fire," an area known for its tectonic plate activity. This has created the 27,000 foot deep Belau Trench, where the islanders set baited traps and catch a form of *Nautilus pompilius* that has been called *palauensis*.

That first trip, in June 1985, we stayed at a newly built hotel called the Pacific Palau Resort, not very far from Koror, the main city. At that time, our efforts to collect in front of the hotel were poorly rewarded; we found only a very dead coral reef with a few old *Spondylus* which had managed to survive the ordeal of construction, and some *Cypraea errones* Linné 1758 under rocks. In the sandy areas we collected some freshly dead *Strombus urceus* Linné 1758, *Conus magus* Linné 1758, a few *Vexillum polygonus* (Gmelin, 1791) and a couple of *Vexillum semifasciatus* (Lamarck, 1815). Now, three years later, we had decided to stay at the same place because it was beautiful and convenient.

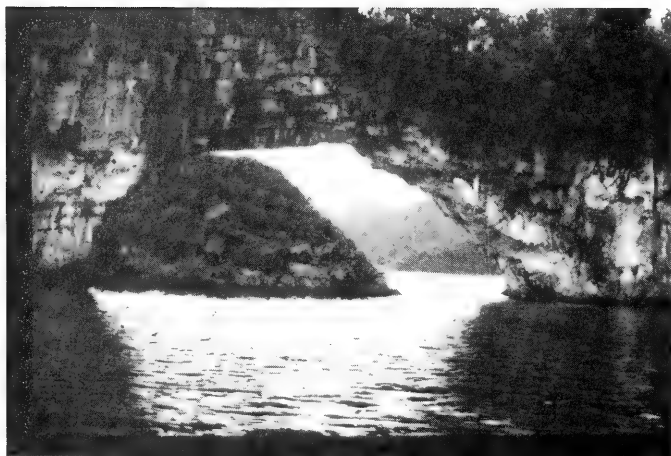
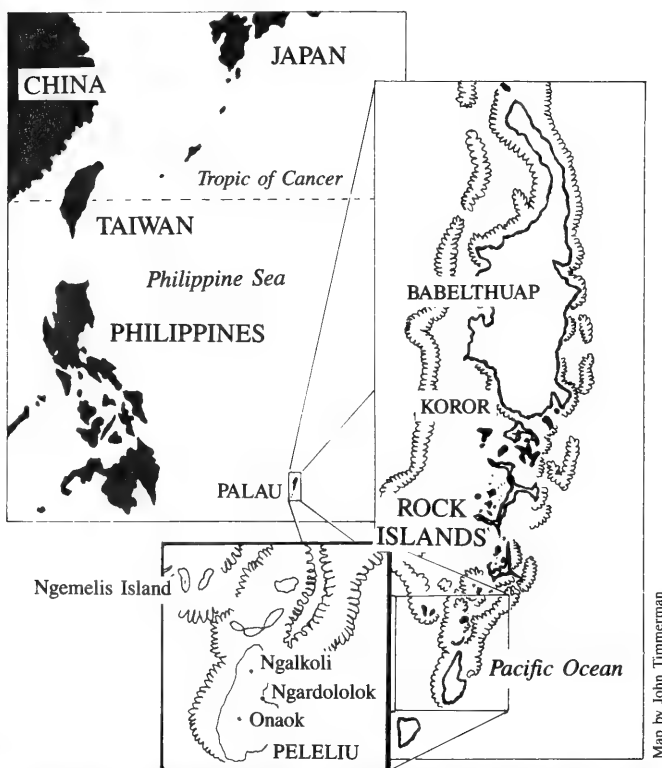
We arrived in Palau under a torrential rain, a *déjà vu* of 1985; actually, it rains there almost every day, with an average rainfall of 148 inches annually. At the hotel, I decided to take it easy and make sure all the arrangements we made in the States were set to go. Besides, what was the point in getting wet and cold (yes, cold!) just to find a few measly shells. Many in the group, however, (you know how foolish "them shell collectors" can be!) decided to try their luck in that nasty weather. I knew they would soon be back wet, cold, tired and disappointed. They should have listened to me!

Three hours later they started filing in, talkative, excited, with big smiles on their faces. The last of them did not come in until sunset, and that's because she was shaking too hard from the cold. In three years the area had made an amazing comeback. Although the coral was still in very bad shape, molluscan sand dwellers were everywhere. Common were *Conus magus* and *Conus marmoreus* Linné, 1758 of all sizes. *Oliva tessellata* Lamarck, 1811 were there for the taking, and so were *Nassarius globosus* Quoy & Gaimard, 1832, *N. albescens* Dunker, 1846, *Mitrella ligula* Duclos, 1840 and *Natica gualteriana* Récluz, 1844. A few *Terebra cingulifera* Lamarck, 1822 and *T. textilis* Hinds, 1844 were also found, but the real explosion had happened in the Costellariidae. Fanning the sandy area we found, rather commonly to very commonly, *Vexillum virgo* (Linné, 1758), *V. exasperatum* (Gmelin, 1791), *V. cadaverosum* (Reeve, 1844), *V. gruneri* (Reeve, 1844), *V. polygonus* (Gmelin, 1791) and *V. acuminatus* (Gmelin, 1791). Also found in the same area were *Mitra mitra* (Linné, 1758), *M. stictica* (Link, 1807) and *Imbricaria olivaeformis* (Swainson, 1820).

We had made arrangements to have transportation ready for us at 8:30 every morning, to take us to different collecting areas. The first morning we anxiously got on a magnificent luxury yacht to be ferried to our southernmost destination, the island of Peleliu, and its infamous Bloody Beach. During World War II this island was the site of one of the bloodiest battles fought in the Pacific, and still today one can find empty brass cartridges and other war memorabilia next to a cone or a cowry.

Three extremely old cars were waiting for us at the landing when we reached the island, and after half an hour of a very bumpy ride on one of the many crushed coral roads that cross Peleliu, we arrived at the beach, as we had hoped, as the tide was ebbing and the hypnotic reefs were beginning to reveal their magic.

Although a little disappointing for some of us who had been there before, Bloody Beach and the area around it was a cornucopia of treasures. The exposed reef by the edge of the water had a variety of cones, cowries, drupes, turbans and other reef dwellers, and the area behind it produced four species of *Lambis*, many species of cones including the very venomous *textile*, *marmoreus*, *tulipa* and *geographus* (all Linnean species), *Tridacna*, *Hippopus* and an assort-



One of many beautiful rock formations in the Rock Islands, Palau.

Photos by Emilio García

ment of other gastropods and bivalves.

For several consecutive days we took trips to the incredible Rock Islands, some 200 limestone islets spread out for more than 20 miles between Koror and Peleliu. These islets are ancient coral reefs that were lifted out of the sea millions of years ago. While the smaller islets are heavily undercut and have the appearance of giant mushrooms, the larger southern islands are flatter and have beautiful beaches. If one explores the rocky undercuts at low tide, it will not be difficult to find many species of gastropods and some of the smaller, sessile bivalves, half-hiding in the innumerable holes carved in the rock. Among the more common species are *Chicoreus brunneus* Link, 1807, *Cypraea errones* Linné, 1758 and *Conus ebraeus* Linné, 1758, with *Mitra litterata* Lamarck, 1811, almost as frequent.

Many of the Rock Islands are rather close together and so, at the change of the tide, very strong currents are created. This makes a perfect environment for many bivalves, and they are there to prove it. Lift a rock (the bigger the better, as long as it is not buried in the substratum), and there you will find *Spondylus* and *Chama*, *Pecten* and *Lima*, with perhaps an assortment of *Cypraea lynx*, *C. vitellus* and *C. caurica* (all Linnean species); and if you don't feel like lifting rocks, look closely at the profusion and variety of corals that surround some of the islets, and you will see at times masses of *Lopha cristagalli* (Linné, 1758), more *Spondylus*, and *Chama* and several species of boring clams.

One of my favorite areas is where I found the *Naquetia triquetra*. This Rock Island has to be approached from behind, because the front is too shallow, and at low tide a bank of infinitely white sand connects its two promontories. I had been there three years earlier and, as we approached it now, I wondered if it was going to be as rich as before.

The place didn't disappoint us. In either exposed or very shallow areas we found an array of mollusks belonging to many genera, gastropods as well as bivalves, including the beautiful *Lioconcha castrensis* Linné, 1758. Someone in the group even had the audacity to collect thirteen species of cowries there!

Since I knew from three years earlier that too short a trip to Palau would not do, we had made arrangements to stay ten full days. Between our collecting trips we had managed to do some sightseeing, which included a visit to a medusa lake. When the Palau area was uplifted by geologic forces, these medusae became stranded in some of the salt water lakes that were created. Now, one gets an eerie feeling contemplating these deep, clear bodies of water surrounded by high rocky cliffs with lush vegetation, and watching, in total silence, hundreds of imprisoned jellyfish doing their immemorial dance, going nowhere, only following the movement of the sun during the day, and transformed by time into beings different from their sisters in the open sea.

Towards the end of our stay, and having covered all the known and some of the unknown good spots, we decided to go back to my "*Naquetia place*." What the heck! Even if we didn't find very much this time, it was still a beautiful place.

When we got there, almost everyone went to the shallow, hard bottom area we had visited before. I decided to stay in the deeper anchorage side where the current was strong. It is a good thing I had brought with me my hammer and chisel, and better yet that I have good lungs, because I spent the next two hours going up and down, up and down, turning large rocks, the undersides of which were covered with bivalves. How I wished I had an extra hand. I needed two to operate the hammer and chisel, and at least one more to hold on to the rock because the current kept carrying me away from it. Besides, I was collecting three- to three-and-a-half-inch *Spondylus* and trying to put them inside my four-inch diameter collecting bag!

At the end of the two hours, and after making one trip to the anchored boat to deposit my full bag and pick up my other two bags (which by now were also full), I decided it was time to return. I felt guilty. I thought I should have taken the time to tell the others how good this place was. But, you know how it is, I had the fever. I just could not stop. One rock was better than the next, and if I went to the other side of the island to tell them, well, those rocks might just go away!



A group of shellers arriving at one of the most productive areas in the Rock Islands. The anchorage area was rich in *Spondylus* and other bivalves, while the front beach area yielded *Naquetia triquetra* and a large assortment of cowries, cones, etc.



One of the boats for our group on the daily collecting trip through the Rock Islands.

Not to worry. Everyone had their bags full; moreover, many of the species they had collected had not been found three years ago, not even a few days ago. As a matter of fact, it seemed like no one had ever collected there. The wonders of the sea!

When the last of our ten days arrived, I realized it still wasn't enough. I decided next time I'd stay much longer. But much longer probably won't be enough. How does the saying go? "One is too many; two, not enough." I reluctantly began packing for Truk, Ponhpei and Majuro. But that's another story.



Rob Masino receiving his COA Trophy from COA President Peggy Williams at the Central Florida Shell Show. Rob's winning exhibit was entitled, "A Self Collected Survey of Utila Bay Island, Honduras, C.A."





My children have always been adventurous. They go off to scuba dive around exotic islands. They fly in small planes to remote mountain areas for idyllic skiing. These highly skilled landlubbers — but totally inept sailors — work side by side with friends, novice owners of a 35-foot sailboat, none having any idea what the word “triangulation” means, let alone how to execute it; nor do they know the port from the starboard side of the boat. Yet, through the grace of God, fair winds and pure luck, they managed to navigate from Treasure Island, Florida to British Tortola in the Virgin Islands. This, they tell me, is “living on the edge! You know — being on the flap of the envelope — adding spice to life!”

Oh yes, I know! My grandsons “live on the edge,” pursuing the spice of life in separate ways, meaningful to them. Just 21 years old, one has lived and traveled since he was 16 to India, Sri Lanka, Spain, Ecuador, Peru, Argentina, Bolivia, and Venezuela, to meet people on a one-to-one basis to learn first-hand about them, their land, their culture. The other grandson climbs 14,000 foot high mountains and frozen waterfalls when he’s not rappelling out of a helicopter to rescue some injured hunter or lost skier on the snow-covered slopes of the Rocky Mountains.

The icing on the cake came when we received a videotape of my 45-year old daughter and her 23-year old son skydiving from a small plane at an altitude of 9,000 feet. You know what skydiving is? That’s tumbling, “free-falling,” out the door of the plane at 100 miles per hour, down into space without benefit of a parachute until you reach 4,000 feet, and then hoping the ripcord opens your parachute without mishap! The title of the videotape — yes, you guessed it — “Living on the Edge!”

Well, they aren’t the only ones “living on the edge.” They have never been live shelling!

On my first snorkeling-shelling trip, my friends stuck me on a ledge three feet deep in water at a submerged quarry in the Keys. They sup-

plied me with a hammer, screwdriver and verbal instructions to chisel the colorful *Chama macerophylla* (Gmelin, 1791), Leafy Jewel Boxes, out of the coral walls of the quarry. Did you ever try to hammer anything underwater? When I tired of trying to extract these gems, my eye caught some lovely dancing white fronds that kept emerging and retracting. Fascinated, I was about to touch them when somebody stopped me and pulled me above the surface to caution that they were poisonous “feather dusters,” or some such thing. I hastily backed away, only to find myself plunging downward into unknown depths. Literally, I was not just “living on the edge,” I had dropped off of it! No one had bothered to tell me the ledge was only two feet wide and the quarry waters fifty feet deep beyond the narrow ledge.

At another shelling haven in the Keys, I gingerly followed my friends into the water, but my legs began to itch and sting. I complained to the nearest fellow sheller, only to be told not to walk on or stir up the carpet anemones that were all over the bottom. Now they tell me! Seeking to keep me out of further trouble, my friendly advisor showed me what mustard coral looks like, with warnings to avoid it — poisonous! Don’t poke hands into crevices — moray eels! And never, never get between a barracuda and its young in its home territory — it will attack! How is one to know? I’ve looked and looked and have yet to see any signs underwater saying, “Beware! Barracuda’s Home Territory!”

Once, while snorkeling, I had just entered a swift current to reach the pilings under a bridge. I was searching for *Cypraea cervus* Linne, 1771, the Atlantic Deer Cowrie. Suddenly, several yard-long “torpedoes” hurtled toward me, catching me unawares, throwing me off balance. I then became the second person to walk on water! Upon reflection, I realized it was just a school of albacore hustling toward their dinner.

Then there’s the case of the toadfish. In two inches of water on a sandbar, I turned a dead whelk over with my foot, when the aggressive six-inch toadfish clamped its toothy jaws onto my sneaker and held on until I lifted it ten inches out of the water and shook it off. Beware! They can give you a nasty infection. “Living on the edge!” Don’t think “being on the flap of the envelope” while shelling happens only in the water. Fossil shelling can be hazardous to your health, too — like the time a lady (who shall remain anonymous) stepped into soft marl at a fossil pit, becoming so mired in it that it took three men to pull her out. Yes, even on good old terra firma, one is constantly “living on the edge.”

Before the collection of *Liguus fasciatus* (Muller, 1777), Florida Tree Snails, became illegal, with or without a permit, we braved the perils of rattlesnakes, poisonwood trees, twisting an ankle or breaking a leg in the lacework limestone formations underfoot, the risk of sunstroke hiking miles through the Everglades to reach the hardwood hammocks where these selective mollusks thrive, all the while brushing away the harmless (?) *Nephila clavipes*, Golden Silk Spider, and its 39-inch webs.

Next week I’m going to write a letter to my kids to tell them all about “living on the edge” — “being on the flap of the envelope” in my world!

## SLOW FOOD

An international group of restaurateurs, whose stated objective is to preserve worthy local gastronomic conditions that have been endangered by standardization and industrialization (i.e. “fast foods” — McDonald’s, Pizza Hut, etc. . .), SLOW FOOD, has chosen as its symbol — what else? — the snail. — *New York Shell Club Notes*

## LETTERS:

Betty Lawson of Naples, Florida, informs us that her New Zealand friends have announced that the Auckland, New Zealand Shell Show will be held September 29-30, 1990. They write, “If any shellers over your way were thinking of visiting N.Z., this would be a good time to come.” Betty says that all the shellers she met in New Zealand were super folks, and that this would be a great chance to trade and to make new friends.

## WANDERINGS OF AN ITINERANT MALACOLOGIST VII

### The San Juan Expedition to the Gulf of Tehuantepec

by Donald R. Shasky

It was the afternoon of July 11, 1963. I was aboard the 65 foot shrimp trawler SAN JUAN, working off Puerto Madero, Oaxaca, Mexico, on the Gulf of Tehuantepec. Our captain had turned over the wheel to a mate so that he could come aft to see what my partner, Don Dockins, an ichthyologist from Scripps Institute in La Jolla, California, and I had collected in the last haul of the net. Dockins had many open five gallon cans on deck, partially filled with formaldehyde. In these he preserved his fish. In addition to all of our paraphernalia, a full 55 gallon oil drum was tied to the stern.

The mate wasn't at the helm very long before we found ourselves, instead of cutting into the waves, deep down in a trough parallel to the waves. Instantly, we were throw by a wave and slammed against the starboard bulkhead. The next wave crunched us against the port bulkhead, and the third wave violently returned us to the starboard side. Between the second and third waves, the oil drum tore loose and hit the bulkhead, just inches from my head. We were in swim suits, and so our bodies were now filled with splinters from the deck and our skin was scalded by the formaldehyde from the overturned fish cans. Luckily for us, the mate got the ship turned into the waves before final disaster hit. A fourth wave could have punched out our lights with the rogue oil drum on the loose. Fortunately, I had stored away all my shells from the previous night's and that morning's trawls, just a few minutes before the incident happened.

At that time, Western Airlines had a night flight from Los Angeles to Mexico City with a stop in San Diego. Dockins and I had never met. When he boarded in San Diego, he was easy to pick out, carrying his five-gallon cans nested and taped together. We flew on from Mexico City to Oaxaca where Captain Xavier Mendoza had a taxi waiting to pick us up for the remaining 180 miles to Salina Cruz. Even royalty wouldn't have fared much better.

Shortly after we arrived in Salina Cruz, we were stunned to learn that the Mexican authorities had not given permission for the two gringos to carry out their mission. Now, I don't take announcements like that with any patience whatsoever, so it is best left to your imagination what each passing hour did to us as we waited for approval from Mexico City.

Finally, on the third day of our frustrating wait, someone said yes with the provision that we take a Mexican biologist with us. He was to sample everything that came up in the nets. Since he was not a marine biologist, we did not know what he might wish to take. This "problem" was very quickly solved once we were at sea — he became very seasick and was rarely on deck except for occasional visits to the bow rail.

I was in charge of choosing the trawling sites during our eight days out. We sampled all types of bottom in depths up to 200 fathoms (a little less than 400 meters). The best depths for the seashells were from 20-60 fathoms. During the trip we anchored only one night, so by the time we had finished our trip, our exhaustion was profound.

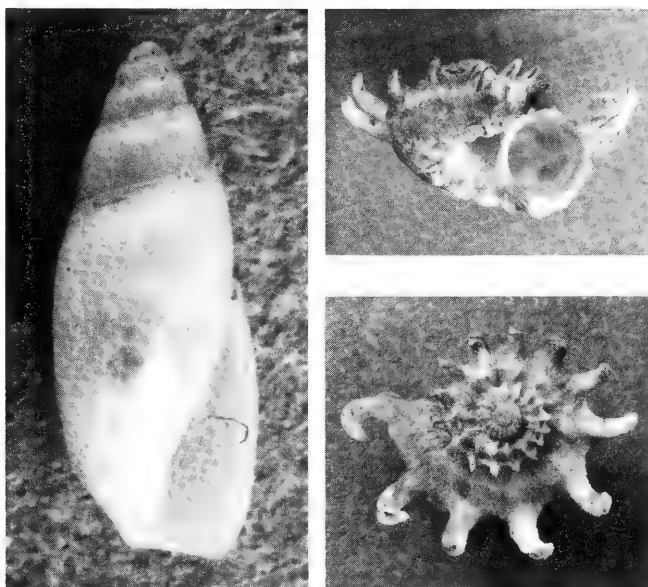
Some species of shells were so abundant, especially *Strombina fusinoidea* Dall, 1916 that we shoveled thousands of specimens back over the rail. One dark night we had a spectacular shark feeding frenzy, initiated by what we were shoveling overboard. One has to witness a spectacle like this to believe it. One haul from rather deep water was filled with thousands of valves of *Delectopecten zaca* (Hertlein, 1935). No living specimens. I picked out a large sample of good valves, and then, "dumpamente" the rest.

On another haul, at night, off Puerto Angel in 61 fathoms, we brought in the only *Trigonostoma funiculatum* (Hinds, 1843) of the expedition — eight large specimens. Numerous specimens of *Natica scethra* Dall, 1908, *Calliostoma nepheloide* Dall, 1913 and *Olivella*

*inconspicua* (C.B. Adams, 1852) were brought up. These species had previously been known only from Panama. The *Olivella inconspicua* were all taken from the stomach of a starfish.

Several new species were discovered from my material: *Amaea tehuana* DuShane & McLean, 1968; *Nassarina perata* Keen, 1971; and *Macrarena spectabilospina* Shasky, 1970. Pictured is the specimen of *Macrarena spectabilospina* used by Tony d'Attilio for the figure on the front cover of the COA Bulletin Vol. 12, no. 2. Also shown is a sand starfish broken open to examine its last meal. It was inside a similar starfish that the *Olivella inconspicua* were found.

Next time, collecting at Mexico's maximum security penal colony, Maria Madre Island an the Tres Marias Islands.



photos by Don Shasky

An "ex starfish" *Olivella inconspicua*.

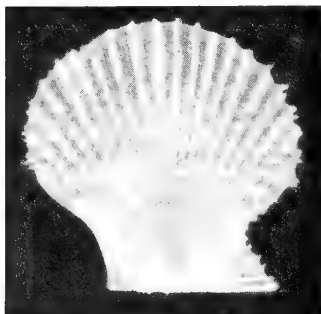
Two views of *Macrarena spectabilospina* Shasky.



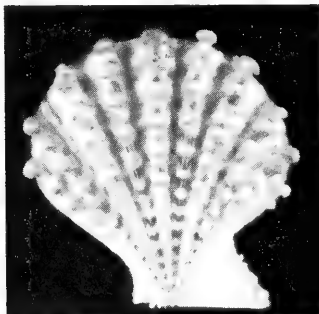
Sand starfish from the San Juan Expedition, broken open to show its last meal.

# CARIBBEAN PECTINIDAE AND PROPEAMUSSIDAE

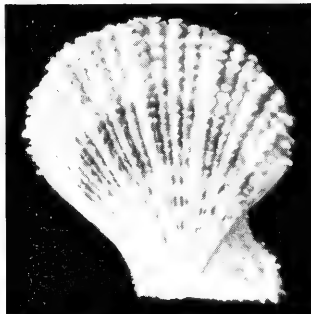
by Kevan Sunderland and Mike Cahill



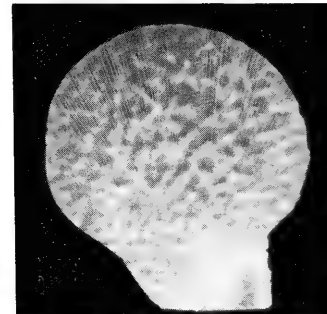
*Chlamys benedicti* (Verrill & Busch, 1897). 25mm. 20 fms, Guadeloupe, French West Indies.



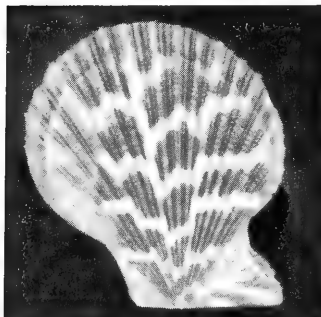
*Chlamys imbricata* (Gmelin, 1791). 53mm. 65' in rocks, Pompano Beach, FL.



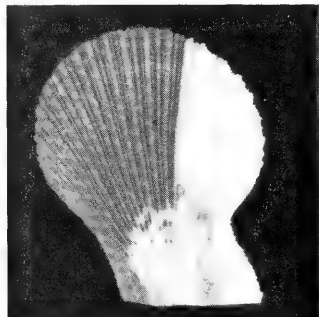
*Chlamys mildredae* (F.M. Bayer, 1943). 52mm. 10 m. in rubble, Pompano Beach, FL.



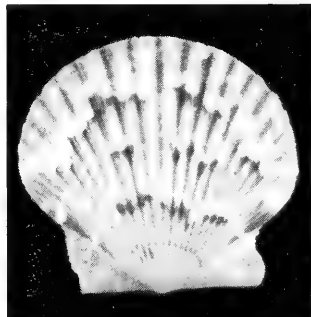
*Chlamys multisquamata* (Dunker, 1864). 48mm. 5' under dead coral, Bonaire, Netherlands Antilles.



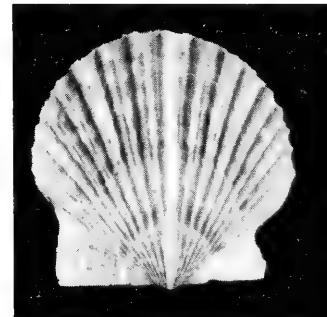
*Chlamys ornata* (Lamarck, 1819). 91mm. 2 fms. in rubble, St. Lucia.



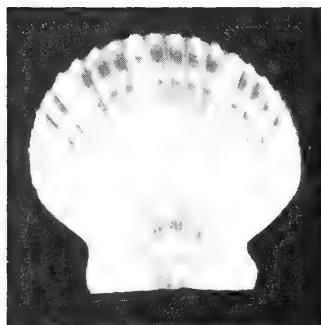
*Chlamys sentis* (Reeve, 1853). 35mm. 5 fms, Palm Beach.



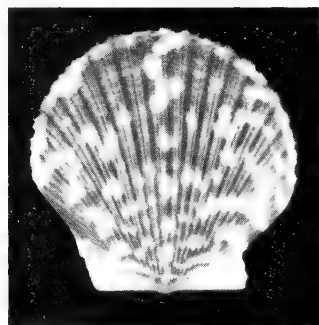
*Argopecten gibbus* (Linné, 1758). 45mm. 10' in sand, Sanibel.



*Argopecten irradians concentricus* (Say, 1822). 50mm. 1 fm., Sanibel.



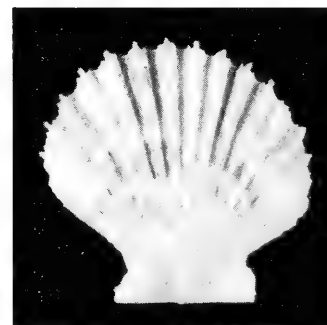
*Argopecten irradians taylorae* (Petuch, 1987). 75mm. 10' in grass, Card Sound.



*Argopecten nucleus* (Born, 1778). 30mm. 10' in grass, Biscayne Bay.



*Aequipecten glyptus* (Verrill, 1882). 75mm. 100 fms., SSW Egmont Key.



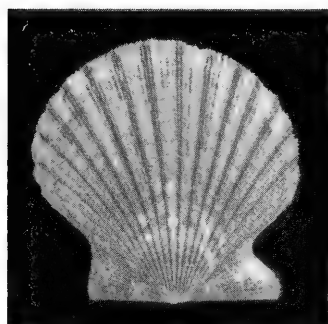
*Aequipecten phrygium* (Dall, 1886). 42mm. 100 fms., mud, Ft. Lauderdale.

Arrangement loosely follows Vaught.

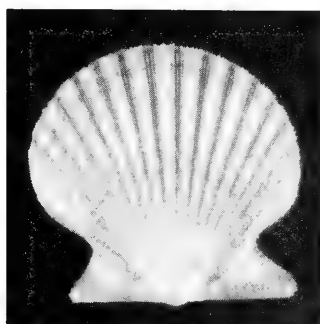
\* Kevan Sunderland: P.O. Box 130243, Sunrise, FL 33313.  
Mike Cahill: 1509 N.E. 5th Ave., Ft. Lauderdale, FL 33304.

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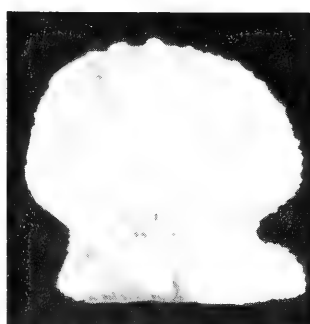
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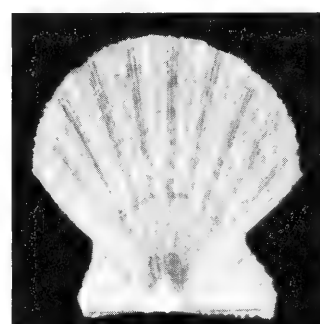
*Aequipecten acanthodes* (Dall, 1925). 32mm. 5' in eel grass, Marathon.



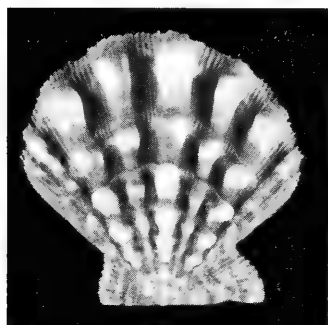
*Aequipecten muscosus* (Wood, 1828). 55mm. 30' off Tarpon Springs.



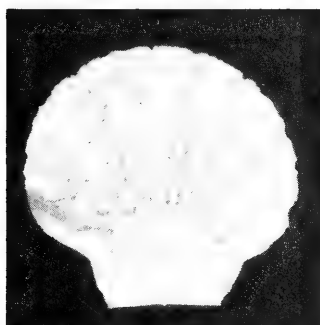
*Leptopecten bavayi* (Dautzenberg, 1900). 16mm. Salvador, Brazil.



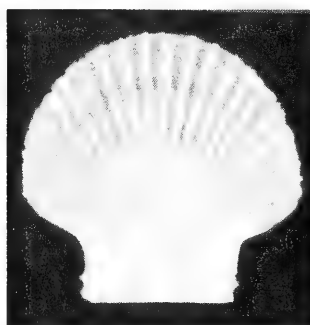
*Lyropecten antillarum* (Récluz, 1853). 26mm. 20 fms., Pompano Beach.



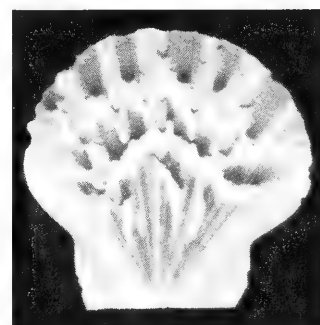
*Nodipecten nodosus* (Linne, 1758). 90mm. 90' in rubble, Cape Canaveral.



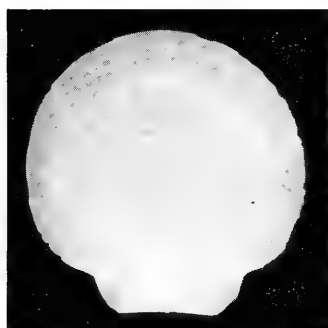
*Pecten chazaliei* Dautzenberg, 1900. 33mm. 15 fms. Dania, FL.



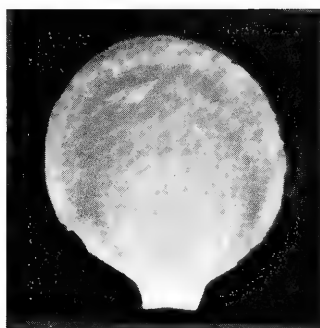
*Pecten raveneli* Dall, 1898. 49mm. 20 fms., Cape Canaveral.



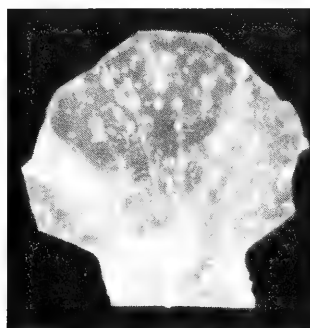
*Pecten ziczac* (Linne, 1758). 40mm., 15 fms. in sand, off Ft. Lauderdale.



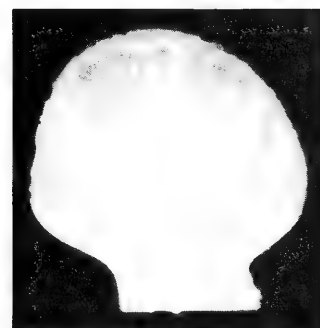
*Amusium papyraceum* (Gabb, 1873). 65mm. 75 fms. in mud, N. Gulf of Mexico.



*Propeamussium dalli* (E.A. Smith, 1886). 75mm. 250 fms. in mud, Cuba.



*Propeamussium pourtalesianum* (Dall, 1886). 10mm. 170 fms., SSW Egmont Key.



*Propeamussium pourtalesianum* var. *holmesii* (Dall, 1886). 12mm. 150 fms, Gulf of Mexico.

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## BOARDTALK.....

From our **COA Treasurer, WALTER SAGE**. . . As of this writing, we have 255 memberships which remain unpaid for 1990. We would hope that this number will be substantially reduced by the date of the July Melbourne Convention. We will have an up-to-date membership list available at the July Convention. Any member who has not sent 1990 dues by the early June mailing date for **American Conchologist** will not receive this issue until their dues payment has been received and processed.

We thank those members who have sent in their dues check with the renewal notice, printed on gold paper, that was enclosed in the September 1989 issue of **American Conchologist**. We attempted to alert those whose memberships remained unpaid as of March 1 by stamping the envelope for their March issue with the notice that this was the last issue they would receive until dues were paid. Unfortunately, due to difficulties in transferring membership data between computers after switching to a new and bigger data base, the envelope of any member renewing after January 1 was stamped obviously in error, for which we apologize. If you have sent me a check, and it was cashed, you can rest assured that you are identified as a paid-up member for 1990. The problem of dues renewal continues to be a vexing one, and we ask your patience and understanding on behalf of our volunteer staff. You will remember the official COA name badges prepared by Ed Colburn, Crystal Beach, Florida, that were available at the 1988 Ft. Myers convention and by mail through this office. These distinctively elegant name badges are again available and Ed will have his equipment at the July Melbourne Convention. Those not able to attend the convention and who wish to order these name badges should write for an order form to: **Ed Colburn, P.O. Box 303, Crystal Beach, FL 34681**.

From our **Membership Chairperson BOBBIE HOUCHIN**. . . After receiving several incorrect membership fees from Canada, we should state that the membership fees for Canada and Mexico are \$12.50 for individual and \$15.00 for family/club/organization. The payment should be made in U.S. dollars with a check on a U.S. bank or an international postal money order. Make checks payable to Conchologists of America or **C.O.A.** and mail to **Walter E. Sage, COA Treasurer, P.O. Box 8105, Saddle Brook, NJ 07662**.



Lisa Mitchell and her COA Trophy with her winning exhibit, "Nautilus," at the Treasure Coast Shell Show.

## Italian Malacological Meeting

Want to do something a little different this fall? Try the Third Congress of the Italian Malacological Society (Societa Italiana di Malacologia), being held at Parma, Italy on October 11-13. The main topics will be "The Mollusca and the Mediterranean Area" and "Systematics and Ecology of Bivalves." For more information, write Prof. Daniele Bedulli, Museo Storia Naturale Universita, V. Farini 90, I-43100 Parma, ITALY.



photo by Charlie Glass

A group of Philippine shell dealers find the December 1989 **American Conchologist** fascinating reading. And what can be capturing their rapt attention? Why, reading about themselves in Charlie Glass' article, "A Shell Dealer in the Philippines," of course!

## IT'S JUNONIA JOHNSTONEI FOR ALABAMA

As of April 19, the State of Alabama has a State Shell, the golden form of *Scaphella junonia*, *Scaphella junonia johnstonei* Clench, 1953. The shell is known from the waters off the Alabama coast, and is named for the noted Alabama shell collector and author, Katherine Yerger Johnstone.

The Nation's second newest shell club, the North Alabama Shell Club, is a busy and thriving organization. President Glen Deuel reports that they have 16 members and as many more prospective members, and are adopting bylaws. In addition to helping with the state shell project, they have also selected an official club shell, the Chambered Nautilus. Their new pins, carrying this emblem, should arrive any day now, and NASC members will have them at Melbourne in July. They are an educationally motivated group as well: they displayed large shell exhibits at the public library this year, and Glen and his wife Marion continue to give shell talks at the public schools. Their success is also inspiring collectors in the Mobile, Alabama area to investigate the idea of a shell club in their city. NASC, we're proud of you!

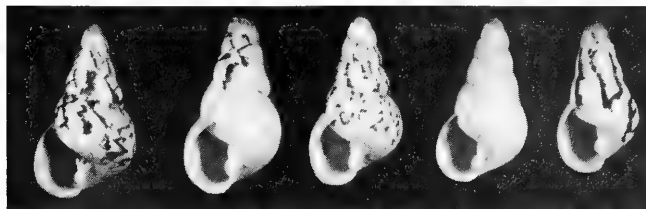


## Brazilian Shells on Stamps

For the shells-on stamps collectors among us, in September, Brazil issued a series of three new postage stamps featuring shells found in Brazil. The set features *Voluta ebraea*, *Agaronia travassosi* and *Morum matthewsi*.



**GENUS LAMINELLA (l-r):** *L. grandidi* (Ferussac, 1824) — Tantalus, Oahu (type species of genus) 24mm; *L. citrina* (Mighels, 1848) — Molokai; *L. sanguinea* (Newcomb, 1853) — Waianae, Oahu; *L. straminea* (Reeve, 1850) — Pauoa Valley, Oahu.



**SIMILAR LAMINELLA (l-r):** *L. venusta* (Mighels, 1845) — Molokai, 12mm (typical); *L. venusta* variety *semivestita* Hyatt & Pilsbry, 1911 — Molokai; *L. venusta* variety *musicaria* Pilsbry, 1911 — Molokai; *L. venusta* variety *semivestita* — an unmarked form; *L. alexandri* (Newcomb, 1865) variety *duoplicata* Baldwin, 1908 — West Maui (less swollen shape than *venusta*).

## HAWAIIAN LAND SNAILS ILLUSTRATE EVOLUTION

By Reginald P. Gage, II

Photos and captions by Richard Goldberg

Extreme isolation and diversity of habitat have produced, in the Hawaiian Islands, an exceptional showcase for the work of evolution. The Hawaiian Archipelago was populated by many varieties of plants and animals. Over time, these colonists diversified into a remarkable number of endemic species. Equally diverse are the adaptations that the emerging life took.

The Hawaiian chain has three characteristics that make it an exceptional laboratory of evolution: (1) the linear arrangement of the islands in chronological order of known geologic ages; (2) a high frequency of endemism (many species are [or were] dominant and display characteristics unlike those related taxa); and (3) evolutionary phenomena such as adaptive shifts, loss of dispersal ability, and arborecence that have been developed to extraordinary degrees.

The Hawaiian Islands are the most isolated archipelago in the world. They lie near the center of the Pacific Ocean — California is 2,390 miles to the east; Japan 3,850 miles to the west; and the Marquesas Islands 2,400 miles south. The habitats of the individual islands range from below sea level to a high volcanic mountain 13,796 feet above sea level.

The linear arrangement of the archipelago results from the movement of the Pacific tectonic plate over a volcanic hotspot. About thirty-five million years ago the Pacific plate gradually moved over an area of volcanic activity, giving rise to the Hawaiian chain as it traveled. Today the volcanoes on the island of Hawaii and a new seamount, Lo'hi, remain as living sentinels of this prior volcanic activity.

The main islands of the Hawaiian chain emerged from the waters of the Pacific Ocean less than six million years ago. The approximate ages of the major Hawaiian volcanoes in the order of extinction are: (1) Niihau and Kauai, 5.6 to 3.8 million years; (2) Waianae Mountains, Oahu, 3.4 to 2.7 million years; (3) Koolau Mountains, Oahu, 2.5 to 2.2 million years (4) western Molokai, 1.8 million years; (5) eastern Molokai, 1.5 to 1.3 million years; (6) Wailuku Mountains, Maui, 1.3 to 1.15 million years; (7) Kohala Mountains, Hawaii, less than 1.0 million years; (8) Kahoolawe and Haleakala, Maui, less than .8 million years; (9) Mauna Kea, Hawaii, about .6 million years; (10) Mauna Loa, Hawaii, less than .5 million years; and (11) Hualalai, Hawaii, which is geologically recent.

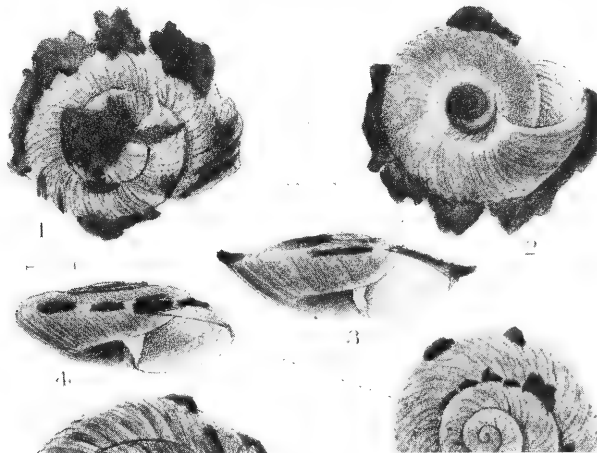
The prehistoric Hawaiian biota arrived by three mechanisms — by floating on the ocean, by carriage on the wind, or by flight of birds. Because the ocean currents to the north and south of Hawaii run parallel to the islands, open ocean travel can all but be eliminated for the predecessors of Hawaii's endemic terrestrial life. Inadvertent

transportation by the wind is applicable primarily to birds, small-bodied insects, spores and minute seeds. Large seeded plants and eggs of invertebrates were more likely brought here on, or in, migratory birds. Whatever the means, immigrant life came from many compass points; from the islands of Polynesia, from Asia, and from the Americas.

During times of lowered sea level, groups of the Hawaiian islands may have been connected. Therefore, once the land had been colonized, plants and animals may have been able to migrate directly from one high area to another. To the northwest of the island of Hawaii lie the islands of Maui, Molokai, Lanai, and Kahoolawe; these four islands rest on a common submerged platform and were almost certainly joined. They are biogeographically a single unit. Oahu lies to the northwest of the deep Molokai channel. It is followed by the islands of Kauai and Niihau that also lie on a communal submerged platform, but which were probably never joined.

Colonization of an island by terrestrial life was a very rare event. It is estimated that a successful immigration may have occurred only once in every few tens of thousands of years. The first arrivals found inhospitable lava, wave-swept shores, abundant wind and rain, and little else Hawaiian plant and animal life became a unique mixture of survivors.

Before the first life had arrived, nature had started to sculpt the land into deep valleys and sharp rises. In time, the island became covered with diverse forests. Those on the dry leeward sides sheltered from the tradewinds differed greatly from the forests on the windward sides. The heavy rainfall in the mountains gave rise to streams,

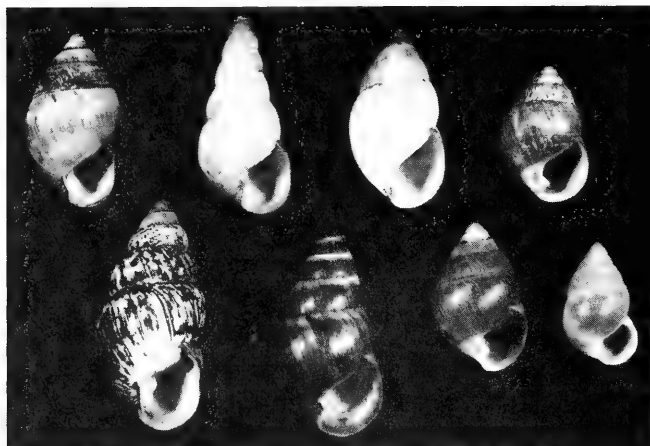


**Pterodiscus wesleyi** (Sykes, 1896) — Wahiwa, Oahu; type species of genus; illustrations from Manual of Conchology, 2nd Series, Vol.21, pl.23. Approximately 8mm in diameter.

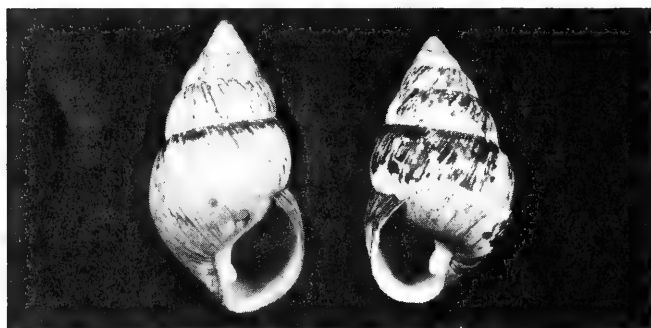
\* P.O. Box 428, Kalaheo, HI 96741

First published in the Bulletin of the National Tropical Botanical Garden, Lawai, Kauai, Hawaii, Vol. XIX, No. 4, October 1989, pp. 113-116. We are grateful to Mr. Gage for the opportunity to enjoy his article.

\*Richard Goldberg, P.O. Box 137, Fresh Meadows, NY 11365.



**AMASTRA** (top l-r): *A. (Amastrella) inflata* (Pfeiffer, 1855) — Punaluu, Koolau Range, Oahu, 16mm; *A. (Paramastra) turritella* (Ferussac, 1824) — Nuuanu Valley, Oahu; *A. (Amastrella) rubens* (Gould, 1845) — Waianae, Oahu; *A. (Metamastra) reticulata* (Newcomb, 1853) — Pukaloa, Oahu (type of subgenus). (bottom l-r): *A. (A.) biplicata* (Newcomb, 1853) — Lanai; *A. (Paramastra) spirizona* (Ferussac, 1821) — Oahu (type of subgenus); *A. (Metamastra) breviata* Baldwin, 1895 — Wailupe Valley, Oahu; *A. (Amastrella) nucleola* (Gould, 1845) — Kauai.



**AMASTRA**: (l) *Amastra (A.) violacea* (Newcomb, 1853) — Molokai, 28mm; (r) *A. (Heteramastra) elongata* (Newcomb, 1853) — Oahu.



**ACHATINELLA OF OAHU**: (top l-r) *A. (A.) apexfulva apicata* Newcomb, 1855 — Oahu (*apexfulva* is type species of genus) 19mm; *A. (A.) vittata simulans* Reeve, 1850; *A. (A.) mustelina* Mighels, 1845 variety *bicolor*; *A. (Bulimella) bulimoides ovata* Newcomb, 1853; *A. (B.) abbreviata* Reeve, 1850. (bottom l-r) *A. (Achatinellastrum) stewartii producta* Reeve, 1850 — Tantalus, Oahu (*producta* is type species of subgenus); *A. (A.) stewartii producta*, variety *dunkeri* "Cuming" Pfeiffer, 1855 — Tantalus, Oahu; *A. (Achatinella) turgida* Newcomb, 1853; *A. (A.) livida recta* Newcomb, 1853; *A. (A.) fulgens* Newcomb, 1853 (an extremely variable species).



**MISC. SPECIES**: (top l-r) *Leptachatina mauiensis* (Pfeiffer, 1854) — Maui, 12mm; *Newcombia plicata* (Mighels, 1848) — Molokai (type of genus); *Newcombia carinella* (Baldwin, 1906) — Maui. (bottom l-r): *Leptachatina cingula* (Mighels, 1845) — Oahu; *Leptachatina grana* (Newcomb, 1853) — Maui; *Leptachatina striatula* (Gould, 1845) — Kauai. (right top): *Auriculella auricula* (Ferussac, 1824) — Oahu, sinistral/dextral (type species of genus). (right middle): *Auriculella brunnea* (E.A. Smith, 1873) — Molokai. (right bottom): left — *Auriculella crassula* (E.A. Smith, 1873) — East Maui; right — *Auriculella uniplicata* Pease, 1868 — W. Maui.

which eroded valleys, built coastal plains, created new habitats, divided and isolated populations of established life. Life evolved to take advantage of new opportunities. Therefore, over many thousands of years, new life was added and related populations became isolated. Time, chance and isolation helped shape the lifeforms of Hawaii.

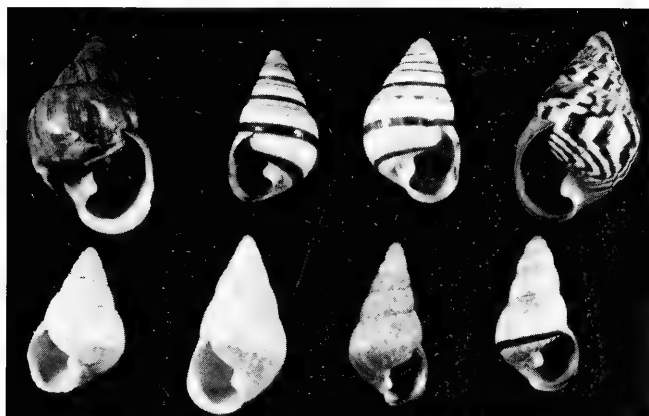
There are large groups of animals (such as the amphibians) that were completely unrepresented in the prehistoric biota. Other groups, like some land snails, enjoyed exuberant development. Evolution occurred not only to new species, but also new genera and even new families. Land snails exemplify the type of evolution that took place in Hawaii. It is estimated that as few as 25 land snail immigrants proliferated into approximately 1,100 endemic species, representing nine families. What evolved was a fauna much more diversified, both morphologically and ecologically, than the taxa from which it took root.

Hawaii's best known land mollusks are the arboreal achatinelline snails (family Tornatellinidae, subfamily Achatinellinae). Two genera, *Achatinella* and *Partulina*, are present with 42 and 44 species, respectively. The genus of *Achatinella* is restricted to the island of Oahu. The genus *Partulina* occurs on Oahu, Molokai, Lanai, Maui and Hawaii.

The oldest and most diversified of the land snails is the terrestrial family Amastridae. The amastrine snails colonized all of the major



*Carelia cf. turricula* (Mighels, 1845) — probably a new species; Kealia, Kauai; buried 18" deep in loam (lens) in open pit; November 1988; leg. Gage & Goldberg. 65mm.

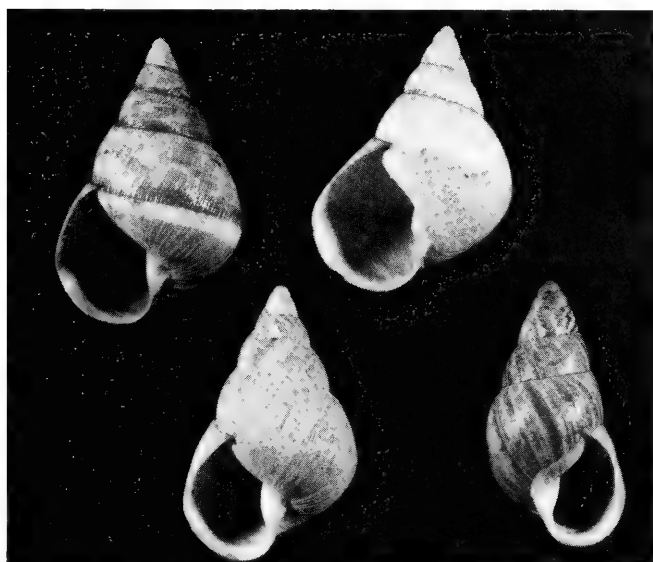


**PARTULINA:** (top l-r) *P. (Baldwinia) physa* (Newcomb, 1853) — Hamakua, Hawaii (Big Island) 21mm; *P. (B.) horneri* (Baldwin, 1895) — Hamakua, Hawaii.  
(bottom l-r) *P. (P.) confusa* (Sykes, 1900) — Waimea Plain, Kohala, Hawaii (Big Island), on pua trees (type of subgenus) = *P. (B.) physa*; *P. (Partulina) dubia* (Newcomb, 1853) — Waimano Valley, Waianae Range, Oahu.

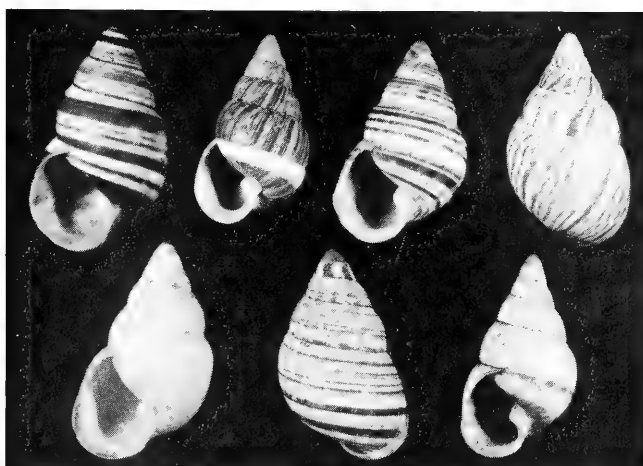
islands of the chain. The family enjoys a unique status in the biota of Hawaii — an endemic family, 17 endemic genera, and over 436 endemic species.

Hawaiian land snails are of interest not only because they are diverse, but also because they have changed substantially from related taxa. There are well-documented cases of adaptive shifts and newly evolved species possessing characteristics and ecological roles unknown to their presumed ancestors.

The Achatinella are known for their colorful shells, for local variation, and for a shift of habitat to an unfilled ecological niche. These snails are members of a ground-dwelling family which became in Hawaii, for the most part, arboreal. They evolved to occupy an ecological niche, usually held by insects, by adapting radula teeth to detritus and microscopic algal and fungal films that coat leaf and bark surfaces. Their relationship to the host plant is symbiotic: they do



**PARTULINA s.s.:** (top l-r) *P. (P.) virgulata* (Mighels, 1845) — Molokai (type species of genus) 26mm; note nuclear whorls of *virgulata* & *tesselata*; *P. (P.) kaaeana* Baldwin, 1906 — West Maui; *P. (P.) splendida* (Newcomb, 1853) — West Maui; *P. (P.) rufa* (Newcomb, 1853) — central Molokai (zebra stripe form).  
(bottom l-r) *P. (P.) virgulata halawaensis* Baldwin, 1906 — Molokai; *P. (P.) tessellata* (Newcomb, 1853) — Molokai; *P. (P.) tappaniana eburnea* (Gulick, 1856) — East Maui.



**PARTULINA:** (top l-r) *P. (Partulinella) marmorata* (Gould, 1847) — East Maui (type of subgenus) 21mm; *P. (Eburniella) variabilis* (Newcomb, 1853) — Lanai (type of subgenus); *P. (E.) nattii* (Baldwin & Hartman, 1888) — East Maui; *P. (Partulina) proxima* (Pease, 1862) — Molokai. (bottom l-r): *P. (Eburniella) semicarinata* (Newcomb, 1853) — Lanai; *P. (P.) nivea* (Baldwin, 1895) — East Maui; *P. (P.) terebra* (Newcomb, 1853) — West Maui; *P. (E.) mighelsiana* (Pfeiffer, 1847) — Molokai.

not feed on the plant host. By grazing off the detritus, algae and fungi, they keep the plant clean and healthy. In some species there is a tendency to form colorless shells through intermediate grades of browns and greens. Some are brilliantly banded; others have dark patterns, often brown or almost black. The normal achatinella shells display brilliant color patterns taking the form of alternating bands. The function of these color schemes is not resolved. Both the *Achatinella* and *Partulina* are highly localized and may remain on a single tree or clump of trees all their lives.

In the ground-dwelling amastrid snails, evolution focussed on increased size, diversification of shape, and also a shift in habitat. From ancestors with rounded conical shells less than one-eighth of an inch in size, evolution gave rise to the genus *Carelia* (endemic to Kauai and Niihau), whose turreted shells attain three inches in length. Some amastrids conceal themselves by emitting masses of mucus on which bits of debris collect. The genus *Pterodiscus* (which has a very flat shell) is, in this condition, nearly invisible. A third genus, *Laminella*, illustrates a shift to life above ground on the fronds of soft-leaved ferns.

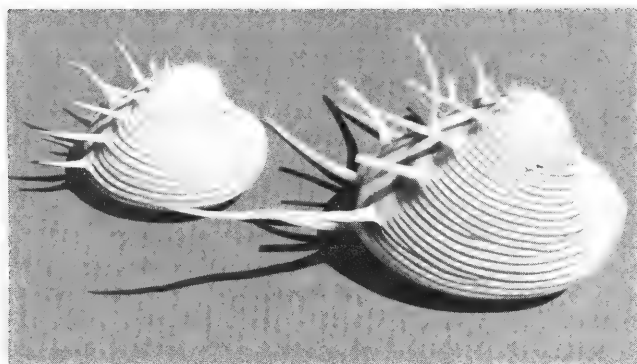
The islands are geologically new. They are an extraordinary natural laboratory of evolution. The process that produced lifeforms elsewhere is being run in Hawaii's microcosm and is open to study. Nowhere is there a better vantage to observe the work of nature than in Hawaii.

#### NEW KID ON THE BLOCK!

There's an attractive new magazine for collectors of American seashells. It's *SIRATUS*, a publication of the Conchiliologists do Brasil, under the editorship of José Coltro, Jr. The new shell magazine is both bimonthly and bilingual, published in Portuguese and English, and has many color illustrations. It features Brazilian shells and collectors, and is beginning a series on Brazilian endemics by Prof. Eliezer Rios. To subscribe, write Conchiliologists do Brasil, Rua Gracindo Sá 39, Sao Paulo/SP, BRAZIL CEP 01443. Subscription is \$30 a year, airmail. Or wait til the convention...we're sure that José Coltro and his brother Marcus will be there selling their beautiful Brazilian shells.

IN MEMORIAM  
Pearl Shank





Left: *Pitar dione* (Linné, 1758) Venezuela. Right: *Pitar lupanarius* (Lesson, 1830) Gulf of California.



photos by Barbara Barfield

Left: *Chione mariae* (Orbigny, 1846) West Mexico. Right: *Chione paphia* (Linné, 1767) Grenada.

## COGNATE BIVALVE SPECIES OF THE WESTERN ATLANTIC AND EASTERN PACIFIC OCEANS

by Barbara Barfield

George Radwin, in 1969, coined the word, "cognate," which means related by family or derived from a common original form, when he was attempting to make a complete list of cognate muricid species of the western Atlantic and eastern Pacific. To understand more clearly what cognate species of mollusks are and why they exist, we must go back in time approximately 200 million years, back to the Triassic Period, when the Earth consisted of a universal land mass called Pangaea, and Panthalassa, the universal ocean. The Tethys Sea, the ancestral Mediterranean, was then a large bay, separating Africa from Eurasia.

Pangaea consisted of submerged forests, swamps and deltas. About 180 million years ago, during the Jurassic Period, Pangaea began to break up; 130 million years ago during the Cretaceous Period, the Atlantic Ocean began to open; 62 million years ago the oceans had reached their maximum extensions. During the Tertiary Period, limestone began to form the backbone of Florida, and 22 million years ago, during the Miocene Epoch, when an ice age dropped sea levels, Florida and the Isthmus of Panama began to emerge.

Many marine animals, particularly mollusks, can only colonize efficiently along continuous shallow seas. We can map the presence of these seas in the geological past from the occurrence of fossils of the creatures that inhabited them.

Dr. A. Myra Keen explains that the ancestral tropical American molluscan fauna seems to have descended from the Tethyan fauna that developed in the east-west seas off the southern shores of what is now Eurasia during early Tertiary time. The eastern spread of the Tethyan fauna gave rise to the modern Indo-Pacific and Japanese faunas, while the westward spread reached across the Atlantic to the southern shores of North America. Modern geological evidence suggests that the ancestral Atlantic was not so deep or so wide as today; continental drift and sea floor spreading have altered the shape and position of land masses. These geological and faunal movements have been slow by human standards, but year after year the current shifts a little and larval mollusks drift and settle beyond the parent stock and gradually species migrate to colonize new areas.

She goes on to explain that the ancestral stock for most of the present day Panamic fauna derives from the westward spread of the fauna from the southern shores of North America. The Panamic fauna is now walled off from its cousins by the Isthmus of Panama, but, geologically speaking, this has only been a temporary barrier. As sea levels rise and fall from time to time, there has been free interchange between the western Atlantic and eastern Pacific that accounts for the large number of similar species occurring in the Caribbean and Panamic faunal areas. Since late Miocene time, though, the Isthmus

has been a barrier, and the faunas have had a few million years to differentiate; although they are considered separate species today, many of these cognate pairs are awfully hard to tell apart.

Here follows a listing of the better known cognate species for the two areas:

### WESTERN ATLANTIC

*Solemya velum* Say, 1822  
*Nucula crenulata* A. Adams, 1856  
*Nuculana acuta* (Conrad, 1831)  
*Arca imbricata* Bruguière, 1789  
*Arca zebra* (Swainson, 1833)  
*Barbatia tenera* (C.B. Adams, 1845)  
*Anadara chemnitzii* (Philippi, 1851)  
*Anadara notabilis* Roding, 1798  
*Arcopsis adamsi* (Dall, 1886)  
*Modiolus americanus* (Leach, 1815)  
*Amygdalum sagittatum* Rehder, 1934  
*Botula fusca* (Gmelin, 1791)  
*Lithophaga bisulcata* (Orbigny, 1842)

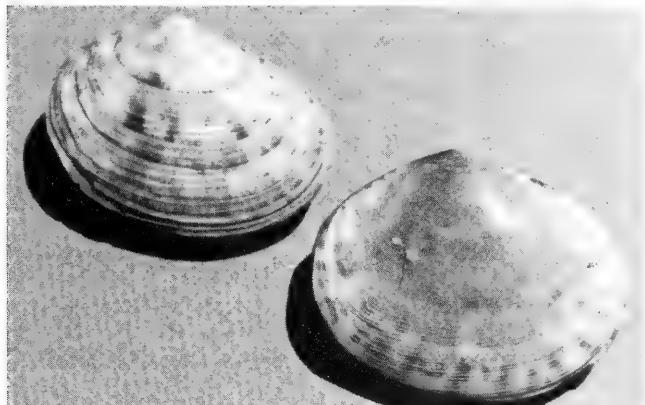
*Pteria colymbus* (Roding, 1798)  
*Pinctada imbricata* Roding, 1798  
*Isognomon bicolor* (C.B. Adams, 1845)  
*Atrina rigida* (Lightfoot, 1786)  
*Atrina seminuda* (Lamarck, 1819)  
*Lima lima* (Linné, 1758)  
*Crassostrea virginica* (Gmelin, 1791)  
*Plicatula gibbosa* Lamarck, 1801  
*Argopecten gibbus* (Linné, 1758)  
*Lyropecten nodosus* (Linné 1758)  
*Spondylus americanus* Hermann, 1781  
*Anomia simplex* Orbigny, 1842  
*Codakia orbicularis* (Linné, 1758)  
*Linga amiantus* (Dall, 1901)  
*Anodontia philippiana* (Reeve, 1850)

### EASTERN PACIFIC

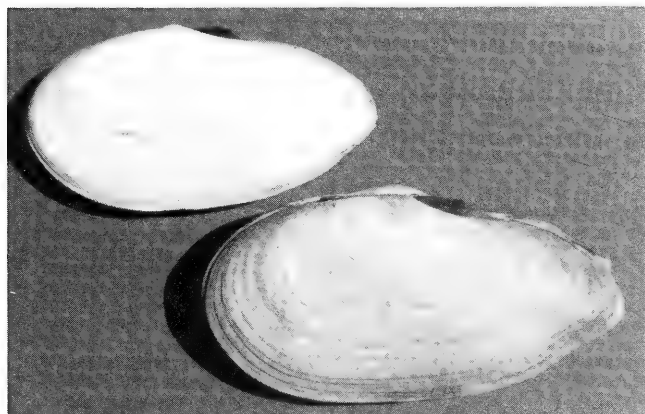
*Solemya valvulus* Carpenter 1864  
*Nucula exigua* Sowerby, 1833  
*Nuculana hindsii* (Hanley, 1860)  
*Arca mutabilis* (Sowerby, 1833)  
*Arca pacifica* (Sowerby, 1833)  
*Barbatia illota* (Sowerby, 1833)  
*Anadara nux* (Sowerby, 1833)  
*Anadara biangulata* (Sowerby, 1833)  
*Arcopsis solida* (Sowerby, 1833)  
*Modiolus pseudotulipus* Olsson, 1961  
*Amygdalum pallidulum* (Dall, 1916)  
*Botula cylista* Berry, 1959  
*Lithophaga plumula kelseyi* Hertlein & Strong, 1946  
*Pteria sterna* (Gould, 1851)  
*Pinctada mazatlanica* (Hanley, 1895)  
*Isognomon recognitus* (Mabille, 1895)  
*Atrina tuberculosa* (Sowerby, 1835)  
*Atrina maura* (Sowerby, 1835)  
*Lima lima tetrica* Gould, 1851  
*Crassostrea gigas* (Thunberg, 1793)  
*Plicatula spondyloopsis* Rochebrune, 1895  
*Argopecten circularis* (Sowerby, 1835)  
*Lyropecten subnodosus* (Sowerby, 1835)  
*Spondylus princeps* Broderip, 1833  
*Anomia peruviana* Orbigny, 1846  
*Codakia distinguenda* (Tryon, 1872)  
*Linga cancellaris* (Philippi, 1846)  
*Anodontia edentuloides* (Verrill, 1870)



Left: *Arca zebra* (Swainson, 1833) Panama City, Florida. Right: *Arca pacifica* (Sowerby, 1833) Danzante Island, West Mexico.



Left: *Semele purpurascens* (Gmelin, 1791) Panama City, Florida.  
Right: *Semele sparsilineata* Dall, 1915; W. Costa Rica.



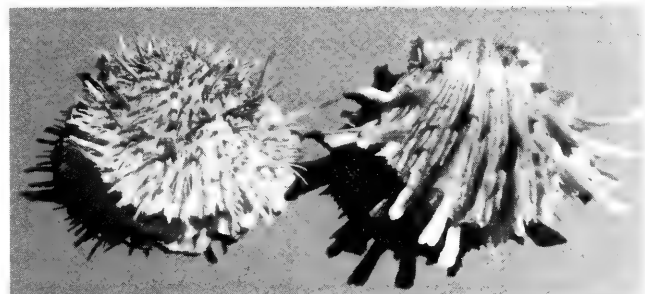
Left: *Sanguinolaria cruenta* (Lightfoot, 1786) Brazil. Right: *Sanguinolaria bertini* Pilsbry & Lowe, 1932; Anconita, Ecuador.

*Divaricella quadriscata* (Orbigny, 1842)  
*Carditamera gracilis* (Shuttleworth, 1856)  
*Arcinella arcinella* (Linne, 1767)  
*Eucrassatella antillarum* (Reeve, 1842)  
*Trachycardium isocardia* (Linne, 1758)  
*Trachycardium muricatum* (Linne, 1758)  
*Papyridea soleniformis* (Bruguère, 1789)  
*Americardia media* (Linne, 1758)

*Divaricella eburnea* (Reeve, 1850)  
*Carditamera affinis* (Sowerby, 1833)  
*Arcinella arcinella californica* (Dall, 1903)  
*Eucrassatella gibbosa* (Sowerby, 1832)  
*Trachycardium consors* (Sowerby, 1833)  
*Trachycardium senticosum* (Sowerby, 1833)  
*Papyridea aspera* (Sowerby, 1833)  
*Americardia biangulata* (Broderip & Sowerby, 1829)

*Laevicardium laevigatum* (Linne, 1758)  
*Mactrellona alata* (Spengler, 1802)  
*Anatina anatina* (Spengler, 1802)  
*Raeta plicatella* (Lamarck, 1818)  
*Solen obliquus* Spengler, 1794  
*Ensis directus* Conrad, 1843  
*Tellina aequistriata* Say, 1824  
*Tellina alternata* Say, 1822  
*Tellina americana* Dall, 1900  
*Tellina angulosa* Gmelin, 1791  
*Tellina cristallina* Spengler, 1798  
*Tellina exerythra* Boss, 1964  
*Tellina gibber* von Ihering, 1907  
*Tellina iris* Say, 1834  
*Tellina juttingae* Alton, 1965

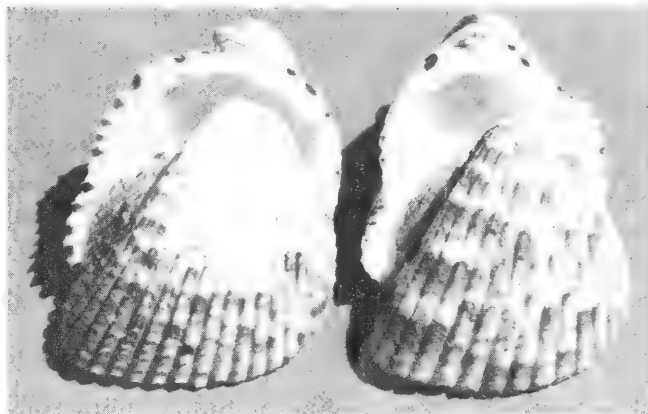
*Laevicardium substriatum* (Conrad, 1837)  
*Mactrellona exoleta* (Gray, 1837)  
*Anatina cyprinus* (Wood, 1828)  
*Raeta undulata* (Gould, 1851)  
*Solen rudis* (C.B. Adams, 1852)  
*Ensis myrae* (Berry, 1953)  
*Tellina reclusa* Dall, 1900  
*Tellina laceridens* Hanley, 1844  
*Tellina pacifica* Dall, 1900  
*Tellina eburnea* Hanley, 1844  
*Tellina rhynchoscute* Olsson, 1961  
*Tellina erythronotus* Pilsbry & Lowe, 1932  
*Tellina hiberna* Hanley, 1844  
*Tellina virgo* Hanley, 1844  
*Tellina lyra* Hanley, 1844



Left: *Spondylus americanus* Hermann, 1781; Panama City, Florida.  
Right: *Spondylus princeps* Broderip, 1833; Gulf of California.



Left: *Papyridea soleniformis* (Bruguère, 1789) Key West, Florida.  
Right: *Papyridea aspera* (Sowerby, 1833) Farallon Island, W. Panama.



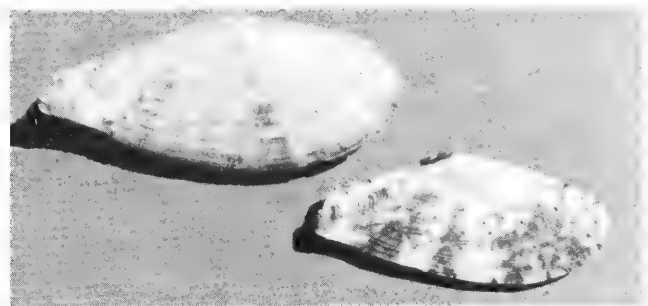
Left: *Americardia media* (Linne, 1758) Eleuthera, Bahamas. Right: *Americardia biangulata* (Broderip & Sowerby, 1829) West Mexico.

*Tellina laevigata* Linne, 1758  
*Tellina listeri* Roding, 1798  
*Tellina martinicensis* Orbigny, 1842  
*Tellina mera* Say, 1834  
*Tellina nitens* C.B. Adams, 1845  
*Tellina persica* Dall & Simpson, 1901  
*Tellina punicea* Born, 1778  
*Tellina sandix* Boss, 1968  
*Tellina squamifera* Deshayes, 1855  
*Tellina sybaritica* Dall, 1881  
*Tellina tampaensis* Conrad, 1866  
*Tellidora cristata* (Recluz, 1842)

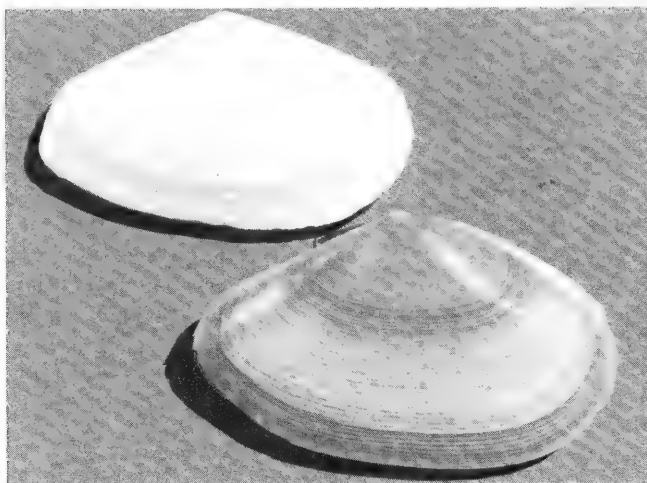
*Tellina ochracea* Carpenter, 1864  
*Tellina cumingii* Hanley, 1844  
*Tellina ulloana* Hertlein, 1968  
*Tellina meropsis* Dall, 1900  
*Tellina inaequistriata* Donovan, 1802  
*Tellina flucigera* Dall, 1908  
*Tellina simulans* C.B. Adams, 1852  
*Tellina esmeralda* (Olsson, 1961)  
*Tellina pristiphora* Dall, 1900  
*Tellina amianta* Dall, 1900  
*Tellina suffusa* Dall, 1900  
*Tellidora burneti* (Broderip & Sowerby, 1829)

*Strigilla gabbi* Olsson & McGinty, 1958  
*Strigilla pisiformis* (Linne, 1758)  
*Strigilla producta* Tryon, 1870  
*Strigilla pseudocarnaria* Boss, 1969  
*Cymatoica orientalis* (Dall, 1890)  
*Psammotreta intastriata* (Say, 1827)  
*Semele bellastrata* (Conrad, 1837)  
*Semele nuculoides* (Conrad, 1841)  
*Semele proficua* (Pulteney, 1799)

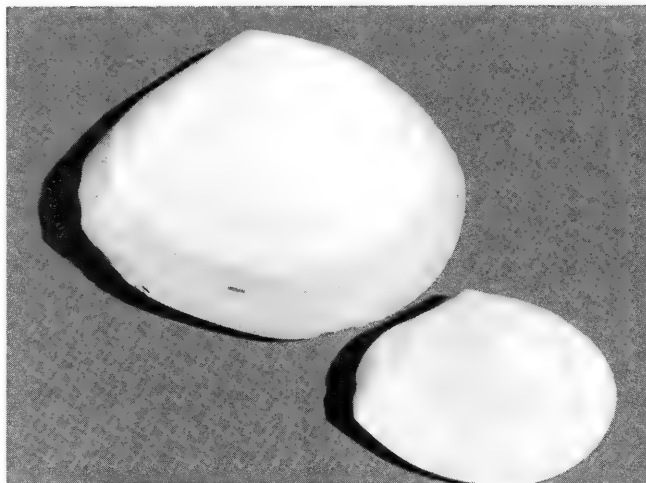
*Strigilla disjuncta* (Carpenter, 1856)  
*Strigilla interrupta*  
*Strigilla ervilia* (Philippi, 1846)  
*Strigilla chroma* Salisbury, 1934  
*Cymatoica undulata* (Hanley, 1844)  
*Psammotreta obesa* (Deshayes, 1855)  
*Semele pacifica* Dall, 1915  
*Smemle subquadrata* (Carpenter, 1857)  
*Semele lenticularis* (Sowerby, 1833)



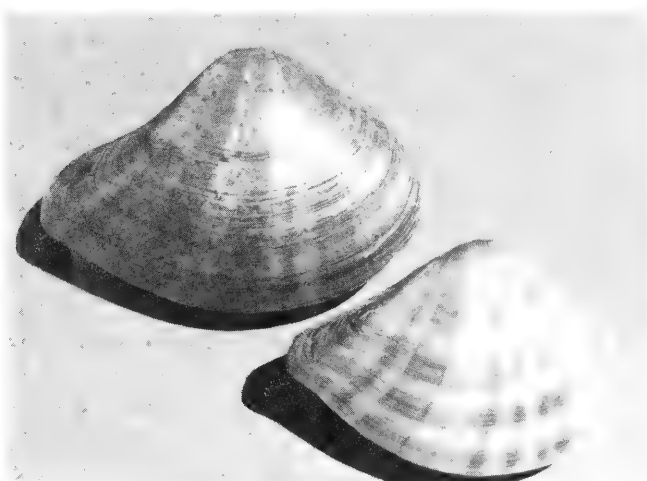
Left: *Tellina listeri* Roding, 1798; Green Turtle Cay, Abaco, Bahamas. Right: *Tellina cumingii* Hanley, 1844; Rancheri Island, W. Panama.



Left: *Tellina punicea* Born, 1778; Sanibel Island, Florida. Right: *Tellina simulans* C.B. Adams, 1852; Nayarit, West Mexico.



Left: *Tellina laevigata* Linné, 1758; Grenada. Right: *Tellina ochracea* Carpenter, 1864; W. Panama.



Left: *Eucrassatella gibbosa* (Sowerby, 1832) Guamas, Sonora, Mexico. Right: *Eucrassatella antillarum* (Reeve, 1842) Venezuela.



Left: *Tellidora cristata* (Recluz, 1842) Panama City, Florida. Right: *Tellidora burneti* (Broderip & Sowerby, 1829) Kino Bay Estuary, Sonora, Mexico.

*Semele purpurascens* (Gmelin, 1791)  
*Cumingia coarctata* Sowerby, 1833  
*Heterodonax bimaculatus* (Linné, 1758)

*Sanguinolaria cruenta* (Lightfoot, 1786)

*Tagelus divisus* (Spengler, 1794)  
*Tagelus plebeius* (Lightfoot, 1786)  
*Donax vellicatus* Reeve, 1854  
*Iphigenia brasiliana* (Lamarck, 1818)  
*Polymesoda caroliniana* (Bosc, 1801)

*Ventricolaria rigida* (Dillwyn, 1817)

*Gouldia cerina* (C.B. Adams, 1845)  
*Chione cancellata* (Linné, 1767)  
*Chione paphia* (Linné, 1767)  
*Chione pubera* (Bory Saint-Vincent, 1827)  
*Mercenaria campechiensis* (Gmelin, 1791)  
*Protothaca pectorina* (Lamarck, 1818)  
*Tivela mactroides* (Born, 1778)  
*Pitar circinatus* (Born, 1778)

*Pitar dione* (Linné, 1758)  
*Cyclinella tenuis* (Recluz, 1852)  
*Petricola lapicida* (Gmelin, 1791)  
*Petricola pholidiformis* (Lamarck, 1818)  
*Sphenia antillensis* Dall & Simpson, 1901  
*Corbula dietziana* C.B. Adams, 1852  
*Corbula cubaniana* Orbigny, 1842  
*Panopea bitruncata* Conrad, 1872  
*Pholas campechiensis* Gmelin, 1791

*Semele sparsilineata* Dall, 1915  
*Cumingia lamellosa* Sowerby, 1833  
*Heterodonax bimaculatus pacificus* (Conrad, 1837)

*Sanguinolaria bertini* Pilsbry & Lowe, 1932

*Tagelus subteres* (Conrad, 1837)  
*Tagelus affinis* (C.B. Adams, 1852)  
*Donax contusus* Reeve, 1854  
*Iphigenia altior* (Sowerby, 1833)  
*Polymesoda mexicana* (Broderip & Sowerby, 1829)

*Ventricolaria rigida isocardia* (Verrill, 1870)  
*Gouldia californica* Dall, 1917  
*Chione compta* (Broderip, 1835)  
*Chione mariae* (Orbigny, 1846)  
*Chione purpurissata* Dall, 1902  
*Mercenaria apodema* (Dall, 1902)  
*Protothaca asperima* (Sowerby, 1835)  
*Tivela mactroides byronensis* (Gray, 1838)  
*Pitar circinatus alternatus* (Broderip, 1935)

*Pitar lupanarius* (Lesson, 1830)  
*Cyclinella singleyi* Dall, 1902  
*Petricola charapota* Olsson, 1961  
*Petricola parallela* Pilsbry & Lowe, 1932  
*Sphenia fragilis* (H. & A. Adams, 1854)  
*Corbula nasuta* Sowerby, 1833  
*Corbula elensis* (Olsson, 1961)  
*Panopea generosa* (Gould, 1850)  
*Pholas chilensis* Molina, 1782

*Barnea truncata* (Say, 1822)  
*Zirfaea crispata* (Linné, 1758)  
*Diplothyra smithii* Tryon, 1862  
*Jouannetia quillingsi* Turner, 1955  
*Xylophaga atlantica* H.G. Richards, 1942  
*Bankia gouldi* Bartsch, 1908  
*Periploma inaequivalve* Schumacher, 1817  
*Lyonsia hyalina* Conrad, 1831  
*Plectodon granulatus* (Dall, 1881)

*Barnea subtruncata* (Sowerby, 1834)  
*Zirfaea pilsbryi* Lowe, 1931  
*Diplothyra curta* (Sowerby, 1834)  
*Jouannetia pectinata* (Conrad, 1849)  
*Xylophaga washingtona* Bartsch, 1921  
*Bankia setacea* (Tryon, 1863)  
*Periploma planiusculum* (Sowerby, 1834)  
*Lyonsia californica* Conrad, 1837  
*Plectodon scaber* Carpenter, 1864

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 Keen, A. M. 1971. Sea Shells of Tropical West America. Stanford University Press, Stanford, California.

#### COA TROPHY WINNERS

We hear that **Joe Lampone** and **Marianne Cheeseman** won the Coa Trophy at Astronaut Trail Shell Show for their Worldwide Muricidae exhibit. Marianne's been doing programs on Muricidae for Florida clubs.

**Joan Scribner** of the Marco Island Shell Club won the COA Trophy for her Exhibit, "Cowries," at the Naples Shell Show, and her husband **Bob** won it for his Muricidae exhibit at the Sanibel Shell Show. Congratulations, both of you!





photo by Fran Thorpe

*Liguus* meets (wo)man.

photo by Marilyn Cox

Can you spot the snail?

## MY ESCAPE TO MATECUMBE KEY

by Marilyn H. Cox

Everything started when I left my Deerfield Beach, Florida home at 6:30 A.M. to photograph the rare and exotic tree snail, *Liguus fasciatus*. These snails, two to three inches long, are found on trees in the hammocks of the Florida Keys and the Everglades. With my camera and a can of mosquito spray on the seat beside me, I drove for 90 minutes south to Homestead where I met my guide for the day, conchologist Archie Jones. The foremost living authority on *Liguus*, Archie has observed and studied these beautiful creatures for more than 55 years.

Our first stop was the upper hammock of Lower Matecumbe Key. A snail hammock is a forest of broad-leaved hardwood trees of West Indian origin: gumbo limbo, poisonwood, mahogany, Jamaica dogwood, pigeon plum, and fiddlewood, surrounded by buttonwood and mangrove. Four of the fifty-eight varieties of *Liguus* — *delicatus*, *simpsoni*, *subcrenatus* and *lignumvitae* — live in the hammock I was about to visit. The thought of photographing even one of these beautiful creatures was so exciting I could hardly wait to get there, but we still had an hour more to drive. We talked as we drove — in air-conditioned comfort over good roads about what the Keys are like today and what they were fifty years ago.

The excitement of the search mounted, but the comfort, good roads and pleasant company came to an abrupt halt when we reached our hammock. It was the middle of August, hotter than Hades, the temperature 95°, humidity almost as high. That hammock is one for the books! Not the slightest breeze penetrated the denseness of that jungle.

We separated in order to cover as much territory as possible. I carried a small tree branch in front of me to break through the monstrous spider webs that constantly blocked my path. Everywhere I went there was that treacherous cactus. Whenever I stepped on one of its branches, a connecting branch would fly up and slam into some part of my anatomy, and it wasn't particular which part! At one point it completely surrounded me and I couldn't figure out how to escape its trap. Only after several painful incidents did I learn to outwit the devilish jungle plant. Oh! for a machete! Vines, some with sharp spines like the cactus wrapped around my body and my legs, entrapping me until I — very, very carefully — broke loose. I fought my way through the underbrush, over fallen logs and around the cactus that entwined its way twelve feet up into the trees, always watching my footing because the hammock floor was coral rock, full of holes just big enough to trap my boot, but well camouflaged with an accumulation of centuries of broken branches and molded leaves. A

snake heaven! While Archie had assured me there were no poisonous snakes on this Key, always on my mind was that fat, colorful and energetic-looking five-foot rattler I had seen on another photography trip to the Everglades.

The heat was atrocious. My blouse was wet clear through, and perspiration ran down into my eyes and mouth; the salt intensified what became, more and more, a raging thirst. I didn't carry a canteen didn't wear a hat either, just a sun visor — I'd felt it was too hot for full head cover. That decision exposed my head to the jungle foliage, allowing cobwebs, bits of dried leaves, twigs and an assortment of insects to tangle themselves in my hair.

Mosquitoes were buzzing around me from head to toe, reminding me to get out the "Deep Forest" repellent and spray my exposed neck, wrists and face, as well as my clothes. That treatment would last for fifteen minutes; then it was time to spray again. I dreaded to think what would happen if I ran out of spray. I thought about the predicament of the escaped convicts in the Georgia swamps. If the posse didn't get them, the mosquitoes would! Through some frugal impulse, at times, I would not spray my jeans, only to look down and see hundreds of those pesky black rascals trying to bite their way through to my legs.

Because the hammock was so dense, the only place snails, if there were any, could find sunlight and air was high in the treetops. That meant bending my head back as far as possible to peer up through the branches overhead, causing my neck to ache 'til it hurt.

Once, when scanning a tree for the Ligs, I stood too long in one place and soon discovered I was standing on a well-concealed ant hill. Not appreciating the intrusion of my uninvited feet, they decided to attack. They crawled all over my right boot and bit my ankle through my heavy sock on their way up the right leg of my jeans. I brushed and slapped furiously, forgetting what I learned from my last encounter with an ant invasion. I should have moved to another spot; my standing there gave the rear flanks of the ant army time to regroup and start up the left boot, sock, and pant leg. Believe me, for a few minutes, deep in that Matecumbe hammock, it was Panic City! Though gloves and long sleeves covered my hands and arms, I unwisely held onto a small tree trunk, interrupting a column of marching ants, allowing a bull ant to somehow get inside all this protection and leave a red welt on my arm as his calling card. Another ant made his way under my blouse and bit my stomach. Let me tell you that those bites really do leave a lasting impression.!

Almost every time I have explored or photographed in the Keys





photo by Marilyn Cox

Notice that the Lig's apex hangs downward on a tree trunk.

or the Everglades, I have acquired a good case of poison ivy from that everpresent weed. I don't even have to touch the darn stuff; I just look at it and get it. And where is one of the favored feeding places of the lovely Lig? On the poisonwood tree, a poison ivy sister plant. And in that hammock they are everywhere. It would be two days before I would know if I had again let my love for Ligs lure me into weeks of itching and ivy pills.

Chiggers are another delayed-reaction peril of the hammocks. They settle into the skin, under belts and other places where clothing is tight, but it takes a day or two for them to start itching. Covering their breathing holes with layers of nail polish eventually smothers them, but until then itching is fierce. Of course I had forgotten to sprinkle that preventative yellow powder, flowers of sulphur, on myself before my foray into the jungle. Bet I remember next time!

After a while I heard Archie's call, indicating it was time to head back to the car. Having no sense of direction in that dusky, canopied hammock, I was completely lost. I followed the sounds of his voice and eventually broke my way back to the road. It was not unusual for me not to find a snail, but Archie, master at spotting the elusive *Liguus*, hadn't found one either. He knew they were there but it would take another day to locate them. I'm seriously wondering if I can go back in there another time.

En route to the next hammock, we realized we had worked up quite an appetite during our morning expedition and decided to stop at the first eatery down the road. You might know, it would be the lovely Quay Restaurant, and I was a disheveled mess! After pulling twigs from my hair, the ends of which were still dripping with perspiration, I brushed it, wiped my sweaty face, applied lipstick, removed my gloves, and hoped people would notice my long, manicured nails with their frosted polish instead of my "glades" clothes and my very dirty Nikes. This was going from the ridiculous to the sublime. Looking out over swaying palm trees and the shimmering Florida Bay, we devoured conch chowder, soft shelled blue crabs, hot breads and glasses of iced tea, all of which fortified me enough to tackle an afternoon of heat, humidity, snakes, poison ivy, chiggers, mosquitoes, cacti, ants, the pot-holed coral terrain, and the jungle.

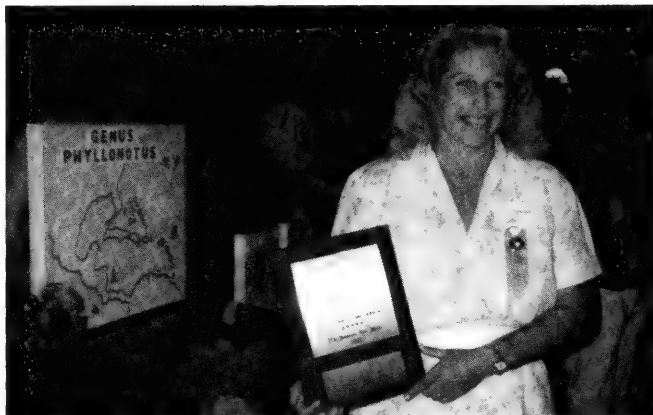
Archie drove slowly over old worn-out roads on the way to the next hammock, while, head out the window, I scanned the trees for Ligs. "Archie, I see one!" I yelled. Sure enough, there was a big brown and white banded *castaneozonatus*, positively stunning but too high to photograph. So were all the other Ligs I saw on those tall old Lysiloma trees. Never have I trudged through a hammock with such a wide variety of snails. Archie explained how veteran snailers plant Ligs they have collected in some hidden location where other snailers would not dream of looking. Ah ha! But we found them!

I decided, if there were that many snails high above, there had to be snails in all that heavy underbrush too. I started plowing my way through the jungle once again, determined to photograph, even though the heat and humidity were about to do me in. I could hear Archie's

voice in the background calling, "Don't forget to watch for snakes," but I was always too busy looking above and beyond to spare any time for the ground, so it was fortunate that I didn't encounter any slithering reptiles that day. After much practice, I was gradually developing the fine art of spotting Ligs on the backside of a swaying leaf, in the fork of two limbs, or engulfed in a thicket. It made me feel good whenever I'd spot a snail concealed twenty feet up, inside leaf-laden branches, and Archie'd call out, "Who says you can't spot snails?"

I was forging through thorny thickets when I came across a monstrous rats' nest about twenty feet long and three feet high. Those Keys packrats are something else! I started to detour around the nest when I looked up, and WOW! There was the most beautiful *ornatus* I had ever seen. I forgot to go around the nest, went right over the top, probably crushing its tunnels. My brilliant yellow *ornatus* was in gem condition with a three-year growth line on the side of its body whorl. And how fortunate for me that the sun sent a single beam of light directly to my magnificent find! At last I could put my camera to work. If I never saw another snail, it would not matter now — I was in Seventh Heaven! *Liguus fasciatus* are a protected species, so I left my handsome gem to aestivate over the dry winter season; but I plan to return in the spring when the warm tropical rains say it is time for the babies to hatch. What a thrill it will be to watch fifteen to fifty "buttons," as the babies are called, start their first crawl up the trunk of a tree.

No matter what I have been through, I have never wanted a day to end when I was in "Lig" country. Driving the two and a half hours home that night, I was on a "high," after a full day of adventure tracking the elusive *Liguus fasciatus*; my mind was already contemplating my next escapade into the hammocks of the Keys and the Everglades.



Pat Bingham of West Palm Beach displays a winner's smile and her COA Trophy at the Sarasota Shell Show. Her exhibit shows the habitat and development of *Phyllonotus* in the Caribbean.



At the Marco Island Shell Show, Lucille Green holds the COA Trophy she and husband Dave won for their exhibit, "Major Molluscan Families of the Philippines."

## REVIEWS:

**Shells — Jewels from the Sea** by M.G. Harasewych, photographs by Murray Alcosser. 1989. Rizzoli International Publications, New York, 224pp, 211 color plates. \$45.

**Shells** by R. Tucker Abbott, numerous photographers. 1989. Portland House, New York. 160pp., more than 160 color photos. \$19.95.

These large-format, lavishly illustrated volumes should not be considered mere "coffee-table" books, designed to show the good taste and cultured interests of the owner. To this reviewer, they are worthy additions to the ranks of shell books which have preceded them — they are books which should be learned from, and shared with others. Each volume is different in scope and will appeal to a different audience, working in tandem to reinforce the interest of the collector in the beauty and desirability of the molluscan shell.

The Abbott book, consisting of 16 pages of text, bibliography and indices, and photographs arranged by geographic collecting localities, is written for the beginner just developing an interest in shells. The text is simpler and is organized around such topics as life span of mollusks, food of mollusks, growth of the shell, homelands of shells, uses for shells, romance of shells, rare shells, fakes and freaks, and today's great shell collections — all fascinating subjects well presented. The photographs, taken from previously executed work of the author, Pete Carmichael, Alice Barlow, and others, are an excellent selection designed to showcase some of the stunning wonders of the world of mollusks. The geographic layout, with photos of exotic collecting beaches, captivates the viewer and makes the shells seem more real and the pursuit of shell collecting more inviting.

The Harasewych book, with a preface by Stephen Jay Gould and photographs taken expressly for this book by Murray Alcosser, combines a 9 page text with acknowledgements, suggested reading, index, and separate plate captions. The text is a detailed discussion of the origin and formation of the shell, shell coiling, and the mollusk animal, prepared for the more advanced collector. Photographs are arranged in systematic scientific sequence, and include representatives of Polyplacophora, Gastropoda, Cephalopoda, Bivalvia, and Scaphopoda. Pictured are some truly outstanding molluscan gems — species never before presented; species which illustrate spectacular variation of shape, color, and sculpture; specimens of almost unbelievable elegance from the fabled Bledsoe Collection. I have only one problem with the photographs — the unnatural background materials and colors mask the natural magnificence of the shells, and, in this reviewer's opinion, fail to complement the illustrated specimens.

Some final comments are in order. Only 39 species, by my count, are featured in both volumes, another reason to own each book. Share the Abbott book with newcomers; read the Harasewych book carefully and enjoy the wonderful shells shared with us. Each book has the scientific name with the author and date, common name, and size for each species pictured. There are very few errors in either book, and inconsistent, inattentive editing appears to have been kept to a minimum. Buy both books, have fun with them, and draw your own conclusions — you can't go wrong owning these very fine books.

— Walter Sage.

## CORRECTING THE BOOK, "SHELLS"

by R. Tucker Abbott

As most authors sadly learn, no book is published without errors. Below are five errors that inadvertently galloped by my "watchful eye." (*Shells*, Portland House, N.Y. 1989).

p. 12, column 2, line 2, for *angulatum*, read: *femorale*

p. 58 [lower caption, "The choicest . . . , should read]:

The choicest collector's items from the Caribbean are the deep-water slit shells of the family Pleurotomariidae. Largest of the West Indian species is Adanson's Slit Shell, *Pleurotomaria (Entemnotrochus) adansoniana* Crosse and Fischer, 1861. Here a live 6-inch (15 cm) one is seen among sponge beds in 600 feet of water.

p. 106, caption. For: Elliot's Volute. (*Amoria ellioti* (Sowerby, 1864). 3.5 in./9cm), read: Channeled Volute. (*Amoria canaliculata* (McCoy, 1869). 3 in./7.5cm)

p. 130, lower, change caption (This is the true. . .') to:

Dredged in 600 feet of water off Russell Island in the Solomon Islands came this exquisite Brian Bailey's Murex, a subspecies known as *Pteryonotus loebbeckei brianbaileyi* Mulhauser, 1984 (2 in./5cm).

p. 147, caption. Replace last sentence (Sometimes. . .) with: The Pleated Carrier-shell from the Southwest Pacific is a newly described subspecies of a well-known Japanese species. (*Xenophora tenuis* subspecies *granulosa* Ponder, 1983. 3 in./8cm)

## AMU — WSM

AMU, this year, was held at the Marine Biology Laboratory at Woods Hole, Massachusetts, June 3-7. Several symposia and round table discussions were planned, including among their topics the Behavior of Mollusks, to be augmented by a film festival on the same subject. A workshop on home aquaria, the annual auction, a dealers' bourse, a clam bake and fascinating shell trips rounded out the exciting week.

Plans are already underway for AMU-WSM 1991 joint meeting, to be held the last week in June at the University of California at Berkeley. Two symposia are being planned, "Evolutionary History of the Molluscan Fauna of the North Pacific," and "Molluscan Origins and the Environmental Setting of Early Molluscan Evolution." Plan now to attend.

Attendees at the Western Society of Malacologists Meeting June 18-22 will be going to Seattle, where they are in for an excellent series of meetings, a symposium on Alaskan mollusks and a good time in the bargain. Not only is Seattle a marvelous city for tourists, but the WSM has arranged a collecting trip to take advantage of the lowest tides of the year. Also planned are evening slide shows, an auction and reprint sale, and a banquet. For last minute information, contact Roland Anderson, The Seattle Aquarium, Pier 59, Seattle, WA 98101 Tel: 206-386-4359.

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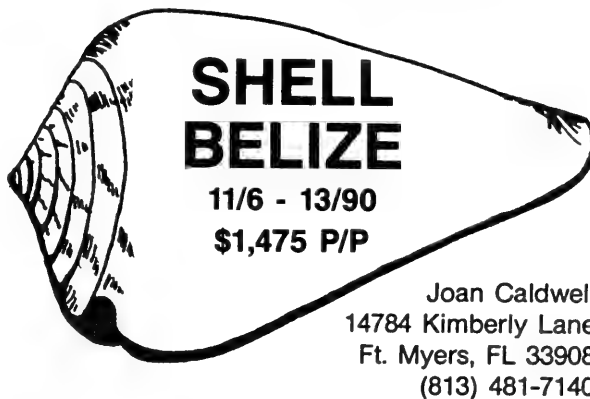
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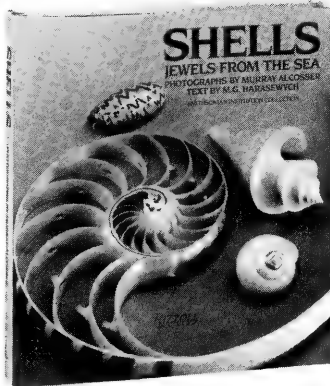
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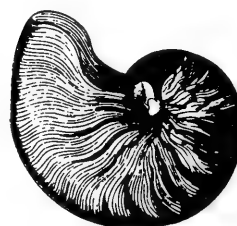
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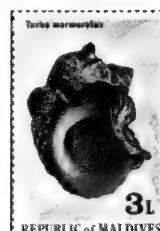
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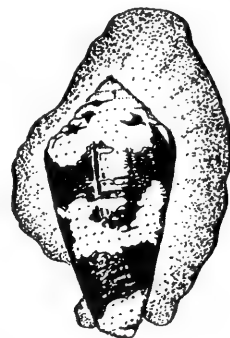
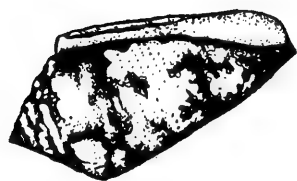
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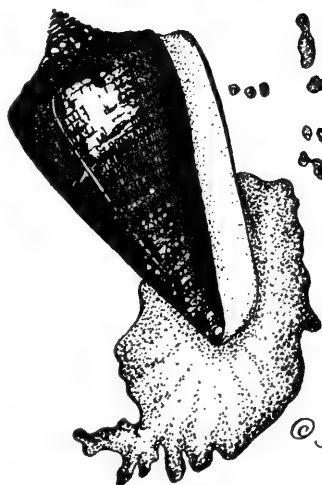
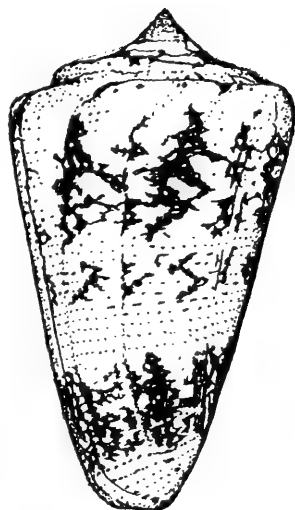
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*Conus cedonulli* Linné, 1767

*Matchless Cone*

*Lesser Antilles*



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SEPTEMBER, 1990



*In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors—for collectors interested in the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. The membership includes novices as well as advanced collectors, scientists and shell dealers from around the country and the world.*

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**COVER:** Artist Kristina Joyce's conception of the Lesser Antilles, home of the infinitely variable *Conus cedonulli* Linné, 1767, the Matchless Cone. Kristina wishes to thank the Mollusc Department of the Harvard Museum of Comparative Zoology for specimens, photographs and inspiration; we wish to thank Kristina for her beautiful design.

**BACK COVER:** *Conus emersoni* Hanna 1963, a deepwater cone from off Baja California. Anthony D'Attilio drawings courtesy of Walter E. Sage III.

#### PRESIDENT'S MESSAGE

I'd like to thank the membership for electing me president of the **Conchologists of America**. I am delighted and proud to accept the position and will always remember the time and place of my installation — the 1990 COA Convention in Melbourne, Florida. The **Astronaut Trail Shell Club** did a marvelous job — the programs, the socials, everything. They even arranged to have the turtles visit us.

I have always believed that COA's function is to serve the member shell clubs and to promote Malacology and Conchology worldwide. It will be to this end that I will direct my efforts during my tenure. My initial effort will be to get as many shell clubs as possible to join COA. In order to do this, we are going to make a change. In the past, COA has communicated with the shell clubs via a representative designated by the club. This will remain the same. However, at the annual convention, only member clubs will be permitted to send a representative to the COA Representative Meeting. At this meeting, the attendees discuss their clubs' ideas, gripes, suggestions, etc. Based on these inputs, COA takes appropriate steps to ascertain that the very best interests of the conchological and malacological community are served. Since COA policy is formulated at these meetings, I feel that only member clubs should participate. As noted earlier, non-member clubs will continue to receive COA mailings and notifications. We need all the participation that we can get. Non-member clubs, please consider joining COA. Help us in our operation.

I have appointed a **Nominating Committee** consisting of **John Baker (Chairman)**, **Sue Hobbs** and **Herb Young**. If you would like to be considered for an elected office, if you have someone in mind whom you think should be considered, or just have some information that will help the Nominating Committee do their job, contact them. Their addresses are noted in your COA membership list.

Looking ahead to next year, the **COA Convention** will be held in **New York**, at the Huntington Hilton on **Long Island**. Our hosts, the **Long Island Shell Club**, are busy organizing and preparing for a great convention. The dates for the convention will be July 8-12, 1991. At this year's convention, the membership voted Jacksonville, Florida as our 1992 Convention site, with the Jacksonville Shell Club hosting the event.

I'm looking forward to a great year. Please feel free to call upon me at any time to discuss anything you have in mind re: the well-being of COA.

**HANK**

#### DON'T MISS AN ISSUE!

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The Georgia Shell Club has a brand new pin also . . . wish we had a picture of it.



The *Conus cedonulli* complex spans the southern Caribbean: Ranges: 1. *Conus harlandi* 2. *C. mappa granarius* "desmotus" 3. *C. mappa granarius* 4. *C. mappa granarius* "sanctaemarthae" 5. *C. curassaviensis* 6. *C. mappa trinitarius* 7. *C. mappa mappa* 8. *C. cedonulli insularis* 9. *C. cedonulli cedonulli* 10. *C. cedonulli dominicanus*.

## THE MATCHLESS CONE

We're using a "Best of the Newsletters" selection as our feature article this issue. Matthew Grote's study for the Spring 1990 National Capital Shell Club newsletter is an excellent example of what a dedicated amateur (with a bit of educator in his soul) can do for his fellow collectors. Mr. Grote has pulled together the information contained in the current literature on a favorite and spectacular group of Caribbean cones, the *Conus cedonulli* complex. In doing so, he has helped demystify for us the tangle of names, localities and forms surrounding these "Matchless Cones" of the lower Caribbean.

Richard Goldberg's beautiful color plate and accompanying black and white photographs enrich Matthew Grote's article. He has illustrated a variety of forms from several fine collections — some relatively common, others rare, yet all beautiful — forms taken from many different localities throughout the extensive range of the *cedonulli* complex.

It is not our intention in this feature to assign names, to determine the validity of species or subspecies, or to adopt a lumpers' or a splitter's viewpoint. We believe the various forms a species or species complex takes are of interest to all dedicated collectors of that group, whatever their taxonomic status, and that the effect of geography on a species is one of the most fascinating aspects to the collecting of that species. So here is the glorious *Conus cedonulli* complex — by whatever name we call it, Linnaeus' said it best — its beauty is second to none!

Even though our system of naming mollusks, and indeed all living things, originates with Linnaeus, many of the actual names he chose were already in general use. The name "*cedonulli*" didn't originate with Linnaeus. In their review of the complex, Danker Vink and Rudo von Cosel tell us: "According to Hwass in Bruguiere (1792), Klein (1753) first referred to *Conus cedonulli* as a species, although the name was non-binominal. D'Argenville in 1757 called it "Le fameux admiral nommé par excellence *cedonulli*," or "the famous admiral named for its excellence *cedonulli*." The name "admiral" was applied to the group even earlier (confusing it with the Indo-Pacific cone of that name). "The pattern of some specimens with strings of white dots on a golden yellow background is reminiscent of sleeve stripes of an admiral consisting of five golden bands stitched together to form a solid band," say Vink and von Cosel in their "The *Conus cedonulli* complex: Historical Review, taxonomy and biological observations," *Revue Suisse de Zoologie*, October 1985. p.525-603.

## TAKING A LOOK AT CONUS CEDONULLI

by Matthew Grote

*Conus cedonulli* Linné, 1767, once the pride of a few wealthy European collectors, is now represented by at least one example in nearly every collection. This situation is the result of increased shelling activity in the Southern Caribbean. *C. cedonulli*, with its host of varieties and subspecies, however, still commands a high price, the usual range being between 50 and 150 dollars. In my discussion of this beautiful cone, I will cover its range, its synonymy, and its Caribbean allies.

In spite of *C. cedonulli*'s rarity, it is a rather far-ranging mollusk. I feel its distribution in the Caribbean is best described as occupying an area in the shape of a wide U. This U is formed starting with the coast of Honduras, where we find *Conus harlandi* Petuch, 1987. The range is further extended southward along Central America, across the northern coast of South



Some workers consider *Conus scopulorum*, from Ceara State, Brazil and the offshore island groups shown above, to be a part of the *Conus cedonulli* complex. If this is so, it is notable that its range is nearly 2000 miles distant from its closest relative, *Conus mappa mappa* in Trinidad.





**APERTURAL CONSTRICTION:** All of the *C. mappa* forms have an apertural constriction (see arrow) when observed from an anterior view, as opposed to the *C. cedonulli* which has an unobstructed internal whorl. *Conus mappa mappae*, Tobago (left), and *Conus c. cedonulli*, St. Vincent (right).

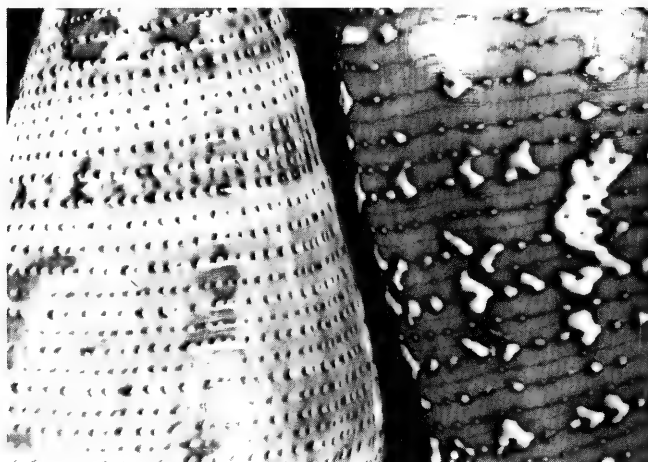
America roughly to Trinidad, and finally northward again up through the Grenadines. The other end of *C. cedonulli*'s range is marked by the other arm of the U in the Lesser Antilles. In describing this range I have lumped the synonymy to represent one species. In the following paragraphs, though, I will discuss many of the popular varieties seen in the hobby today.

*C. harlandi*, a recently described shell from Honduras, is considered the northernmost species of the *C. cedonulli* complex. Typical specimens of *C. harlandi* rarely exceed 30mm, making it one of the smallest in the complex. The shape and pattern of this shell is very distinct. Immature specimens have a high spire; this spire appears flattened in the mature cone. An obvious explanation for this would be the combination of erosion and the relatively large size of the mature body whorl. The pattern of *C. harlandi* is best described as diffused tan to reddish brown bands, with many indistinct dots and patches.

Moving south of Honduras to Panama, we encounter *Conus granarius desmotus* Tomlin, 1937. Like *C. harlandi*, *C. granarius desmotus* possesses a rather distinct pattern. *C. granarius desmotus* also portrays many of the characteristic traits of *Conus granarius* Kiener, 1848 (see below), in particular the high spire and somewhat straight sides. The color of the patches is yellowish tan to brown.

Continuing over to coast of Colombia we encounter typical *C. cedonulli granarius*. Although considered a subspecies of *Conus mappa* Lightfoot, 1786 (see below), *C. granarius* has many unique characteristics. Beginning with its pattern, we find *C. granarius* is one of the most variable in the *C. cedonulli* complex. Its pattern ranges from banded to dotted, and its colors encompass a rich array of oranges, tans and chestnuts. Most specimens of *C. granarius* lack the "cedonulli pattern" of repeated variable margined patches and flammules. In its place we have blocks and bars of color or reduced patterns with very little color. Other prominent characteristics of *C. granarius* are its high spire and straight sides. Recently taken specimens have measured over 70mm, making it one of the larger *C. cedonulli* types. Somewhat similar to *C. granarius* in form and pattern is *Conus sanctaemarthae* Vink, 1977, of the same region.

Within the range of *C. granarius* and extending to Tobago is *C. mappa*. I feel that this *C. cedonulli* variant is the most beautiful. The spire of *C. mappa* is elegantly stepped. In perfect specimens the nuclear whorls form a sharp apex. Also among the characteristics of *C. mappa* are its broad shoulder and convex sides. As if its graceful form weren't enough, this shell also comes in a variety of colors and patterns. The base color of *C. mappa* is usually grayish to pinkish. This is complimented by varicolored maculations and flammules that I consider true to the *C. cedonulli* type pattern. This cone also has a variety called *Conus mappa trinitarius* Hwass, 1792. Found near islands off the east coast of Venezuela, this shell differs from *C. mappa* in that its patches are not darkly outlined and the shell can possess more than one color on the body whorl.



**CLOSE-UP OF PATTERN:** *C. mappa* species have a more intricate, alternating white and brown, spiral pattern than the *C. cedonulli* group. *Conus mappa granarius* (= *santaemarthae*) (left), *Conus c. cedonulli* (right).

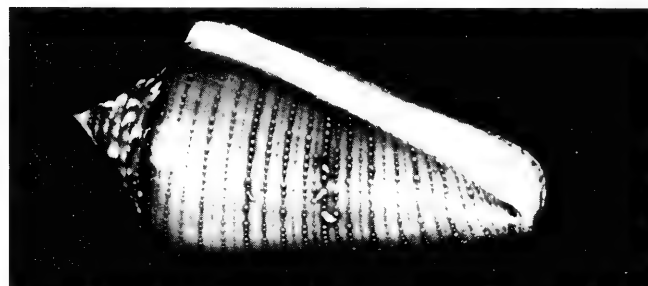
Pausing in the Netherlands Antilles, we find *Conus cedonulli curassaviensis* Hwass, 1792. In my opinion, this shell represents an intermediate form between *C. cedonulli* and *Conus aurantius* Hwass, 1792. *C. curassaviensis* is rather thin at the shoulder and heavily coronated like *C. aurantius*, yet possesses a non-*aurantius* pattern. Its pattern, like that of the typical *C. cedonulli*, is fine and repetitions.

Entering the Grenadines, we find a large concentration of *C. cedonulli* varieties. In this area it is hard to separate the ranges, as many overlap. *Conus cedonulli dominicanus* Hwass, 1792, found near Grenada and up through Bequia, is an attractive cone with large areas of white. Its spire is less elevated than that of *C. mappa*.

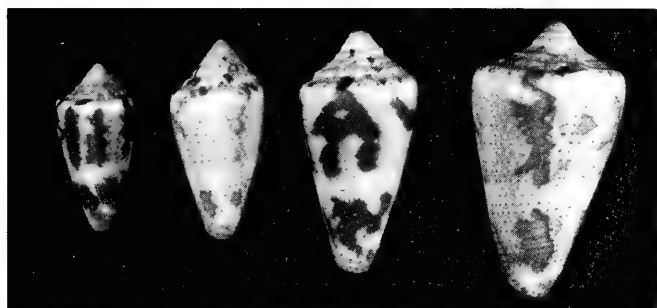
The home of typical *C. cedonulli* is considered St. Vincent. These shells have much more body whorl color, with the reticulations, patches and flammules reduced. The range of these colors is usually some variety of brown, though shades of orange, red, olive, and even black are not uncommon. This black variety is called *Conus holemani* Usticke, 1968. Also prominent in *C. cedonulli*'s pattern are its beaded spiral lines. When an example has no pattern and only spiral lines, it could be considered *Conus caledonicus* Hwass, 1792. This pattern is rare and not too well known.

Going north again to St. Lucia we find *Conus cedonulli insularis* Gmelin, 1791. It differs from typical *C. cedonulli* in that its background coloring is broken into isolated regions. The range of this shell extends to Barbados. I feel the related *Conus cedonulli caracanus* Hwass, 1792 is a dark variety of *C. cedonulli insularis*.

Exactly where *C. cedonulli*'s range ends in the Lesser Antilles, I'm not sure. According to Walls, *C. cedonulli*'s range reaches as far north as the Bahamas. I must therefore terminate the other arm of the U shape somewhere in this area.



*Conus cedonulli* Linné, 1767 — 55mm. West coast of St. Vincent, West Indies. An intermediate between typical *cedonulli* and the *caledonicus* form. Background color is dark red. Ex. coll. R. G.



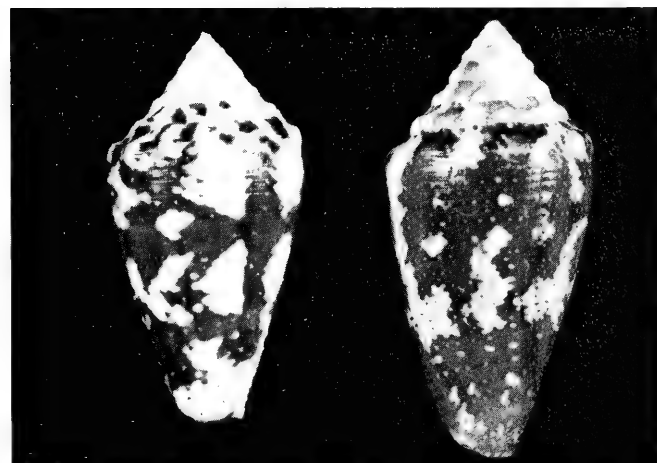
**VARIATIONS ON A THEME:** *Conus cedonulli insularis* Gmelin, 1791 [sub-fossils] — 30-47mm. Pidgeon Island land fill, northwest St. Lucia, West Indies. The *cedonulli* complex can be extremely variable in both color/pattern and shape, even in the same populations as shown here. Vink and von Cosel (1985) state that only sub-fossils can be found at this locality. Living specimens are very rarely found here (see #8).

*C. cedonulli* has two strong allies in the western Atlantic.

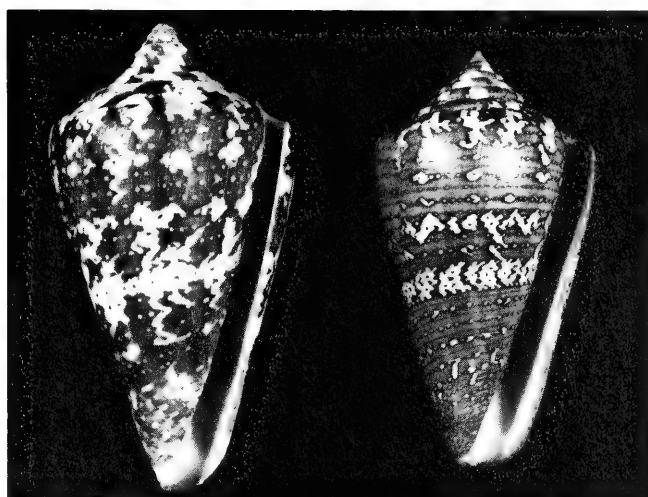
The first is the striking *C. aurantius*. Generally confined to the Netherlands Antilles, this cone differs from *C. cedonulli* in having a coronate spire and shoulder, a slimmer appearance, and somewhat straighter sides. The color and pattern of *C. aurantius* is less subtle than *C. cedonulli*. Big blocks of yellow, orange, tan, brown or black are interspersed with blocks of white. The color-to-white ratio varies with



*Conus regius* Gmelin, 1791 — 45mm. Drax Hall, west of Ocho Rios, Jamaica, West Indies, 5-8', leg. R. G., ex. coll. R. G.



**TOO CLOSE FOR COMFORT:** Smaller specimens of *Conus regius* can at first be confused with similar size specimens of *Conus aurantius* and *curassaviensis*. Both *regius* and *curassaviensis* have fine spiral threads between the sutures on the spire. In *regius*, spire height becomes proportionately lower as shell size increases. *Conus regius* Gmelin, 1791 — 26mm. Curacao, Netherland Antilles, 20-25' .26mm. Ex. coll. R. G. *Conus cf. curassaviensis* Hwass, in Bruguiere, 1792 — 30 mm. Malmok, Aruba, in 4 meters of water, leg. R. G., ex. coll. R. G.



*Conus archon* Broderip, 1833 — 64mm. Dredged in Bay of Chiriqui, western Panama, in 200'. Ex. coll. R. G. (left). *Conus c. cedonulli* (same as figure 1). *C. archon* is the Eastern Pacific cognate species to the *cedonulli/mappa* complex. It lacks the internal restriction found in *mappa*, but in many ways mimics the patterns of its Caribbean relatives.

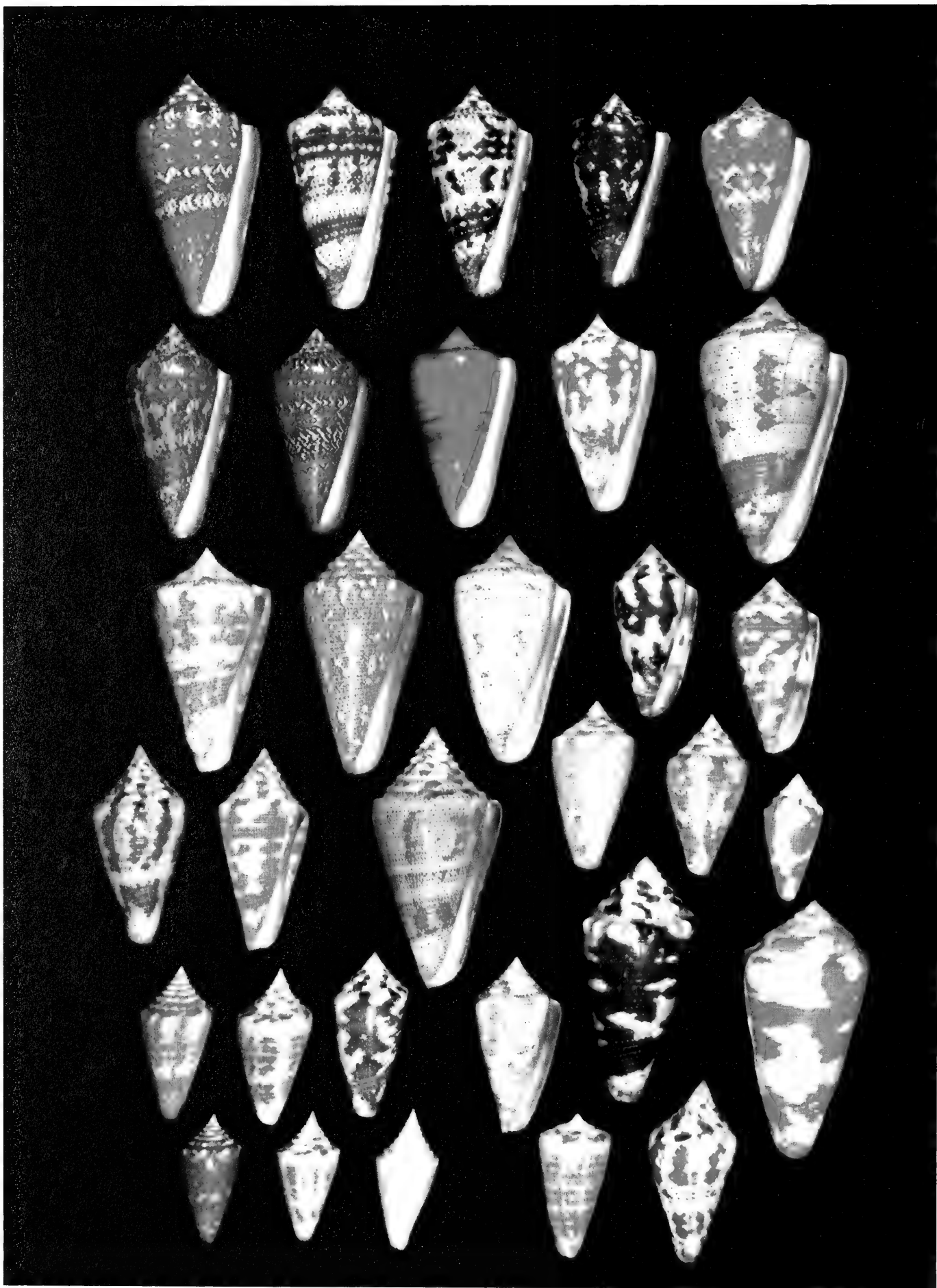
The second ally is the far-ranging *Conus regius* Gmelin, 1791. The biggest difference between the two is *C. regius*' broadly coronate shoulder. The color and pattern of *C. regius* are superficially similar to *C. cedonulli*. However, upon closer inspection, one finds *C. regius*' pattern vague and blotched with tones of purple.

It's my hope that this article has shed some light on the beautiful and oft-named *C. cedonulli* and facilitated the understanding of the range, synonymy and allies of this exquisite mollusk. I have an intense interest in western Atlantic cones, and I would welcome all comments and corrections to my observations. This article was derived from available literature and my own opinions. I acknowledge that there are many forms that were not mentioned. The omissions were intentional in order to avoid over-analysis of *C. cedonulli*.

#### VINK'S DETERMINATION OF THE NAMES IN THE CEDONULLI COMPLEX

<i>amiralis</i> Hw. in Br., 1792 (form of cedonulli)	= <i>cedonulli</i>
<i>archon</i> Broderip, 1833	valid species
<i>aurantius</i> Hwass in Bruguiere, 1792	valid species
<i>caledonicus</i> Hwass in Bruguiere, 1792	= <i>cedonulli</i>
<i>caracanus</i> Hw. in Br., 1792 (form of cedonulli)	= <i>cedonulli</i> ? <i>insularis</i>
<i>catenatus</i> Sowerby III, 1798 (non. Sow. I, 1850)	= <i>mappa granarius</i>
<i>cedonulli</i> Linne, 1767	valid species
<i>consobrinus</i> Sowerby I, 1850	valid fossil species
<i>curassaviensis</i> Hw. in Br., 1792 (fm. of cedonulli)	valid species
<i>desmotus</i> Tomlin, 1937 (nom. nov. f. <i>catenatus</i> Sowerby)	= <i>mappa granarius</i>
<i>dominicanus</i> Hwass in Br., 1792 (fm. of cedonulli)	subsp. of <i>cedonulli</i>
<i>granarius</i> Kiener, 1848	subsp. of <i>mappa</i>
<i>grenadensis</i> Hw. in Br., 1792 (fm. of cedonulli)	= <i>cedonulli</i>
<i>holemani</i> Usticke, 1968	= <i>cedonulli</i>
<i>insularis</i> Gmelin, 1791	subsp. of <i>cedonulli</i>
<i>mappa</i> Solander in Lightfoot, 1786	valid species
<i>mappa</i> (Hw. in Brug., 1792 (form of cedonulli)	= <i>mappa mappa</i> Lft.
<i>martinicanus</i> Hw. in Br., 1792 (fm. of cedonulli)	= <i>cedonulli</i>
<i>nulli-secundus</i> Usticke, 1968	= <i>cedonulli</i>
<i>pseudaurantius</i> Vink, 1985	valid species
<i>sanctamartae</i> Vink, 1977	= <i>mappa granarius</i>
<i>sanguineus</i> Kiener, 1848	= <i>archon</i>
<i>scopulorum</i> van Mol, Tursch & Kempf, 1871	valid species
<i>surinamensis</i> Hw. in Br., 1792 (form of cedonulli)	= <i>mappa trinitarius</i>
<i>trinitarius</i> Hw. in Br., 1792 (form of cedonulli)	subsp. of <i>mappa</i>

\*Revue suisse de zoologie 92(3):525-603 (1985)

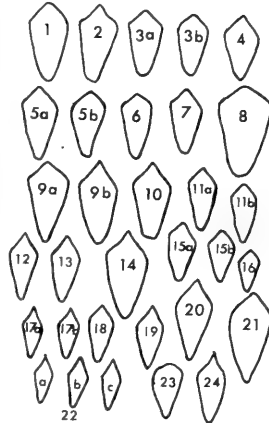


When Linnaeus christened *Conus cedonulli*, he combined Latin words meaning "yielding to none," or, more broadly, "without equal"; we translate the phrase as "matchless." Richard Goldberg's spectacular color plate of the *Conus cedonulli* complex shows just how "matchless," in quite another sense of the word, these cones are! No two alike — size, shape, color and pattern interact to create a seemingly endless variety of shells.

## MATCHLESS INDEED!

Photos, Captions & References by Richard L. Goldberg\*

1. *Conus cedonulli cedonulli* Linné, 1767 — 56 mm. West coast of St. Vincent, West Indies. More or less a typical variety. Ex. coll. S. R.
2. *Conus c. cedonulli* Linné, 1767 [a dark brown variety called *holemani* Usticke, 1968] — 52mm. Ex. coll. R. G.
- 3a. & b. *Conus c. cedonulli* Linné, 1767 [two pattern forms of the black variety] — 49mm & 45mm. West coast of St. Vincent, West Indies. Ex. coll. R. G.
4. *Conus c. cedonulli* Linné, 1767 45mm. [a dead-taken shell — color is faded to orange] — West coast of St. Vincent, West Indies. Ex. coll. R. G.
- 5a & b. *Conus c. cedonulli* Linné, 1767 — 50 mm & 46mm. Young's Island, St. Vincent, West Indies. Right specimen with zigzag markings. Ex. coll. R. G.
6. *Conus c. cedonulli* Linné, 1767 [variety *caledonicus* Hwass, in Bruguière, 1792] — 46.8mm. West coast of St. Vincent, West Indies. Rarest of the *cedonulli* color forms. Ex. coll. R. G.
7. *Conus cedonulli dominicanus* Hwass, in Bruguière, 1792] — 46mm. Grenadines, West Indies. Ex. coll. K. S.
8. *Conus cedonulli insularis* Gmelin, 1791 — 68mm. Live taken off Pidgeon Island, northwest St. Lucia, West Indies; leg. K. E. Only known from St. Lucia and Barbados. Typical *cedonulli* is found southward down the west coast of St. Lucia. Ex. coll. K. E.
- 9a. & b. *Conus mappa mappa* Lightfoot, 1786 — 51mm & 55mm. Southeast coast of Tobago, West Indies. Two color/pattern forms. Endemic to Trinidad and Tobago. Ex. coll. R. G.
10. *Conus mappa trinitarius* Hwass, in Bruguière, 1792 — 52mm. Offshore islands of Venezuela. Ex. coll. K. S.
- 11a. & b. *Conus mappa trinitarius* Hwass, in Bruguière, 1792 — 39.5mm & 40.1mm. Isla de Margarita, Venezuela, scuba, leg. K. S. Ex. coll. K. S.
12. *Conus mappa granarius* Kiener, 1848 — 45mm. Trawled off eastern Columbia. Ranges along the north coast of South America from Santa Maria, Colombia to western Venezuela. Ex. coll. S. R.
13. *Conus mappa granarius* Kiener, 1848 — 46mm. Trawled off Cabo La Vela, Guajira Peninsula, Colombia, by shrimp trawler. An orange color form. Ex. coll. S. R.
14. *Conus mappa granarius* Kiener, 1848 [syn.: *sanc-taemarthae* Vink, 1977] — 59.1mm. Trawled off Cabo La Vela, Guajira Peninsula, Colombia, by shrimp trawler. Ex. coll. S. R.



- 15a & b. *Conus mappa trinitarius* Hwass, in Bruguière, 1792 — Isla de Margarita, Venezuela. a) 38mm. scuba, leg. K. S., ex. coll. K. S. b) 37mm. 3 meters, scuba, ex. coll. R. G.
16. *Conus aurantius* Hwass, in Bruguière, 1792 — 29mm. South of Town Pier, Kralendijk, Bonaire, Netherland Antilles, in 2 meters of water, leg. R. G., ex. coll. R. G.
- 17a. & b. *Conus mappa granarius*? Kiener, 1848 [referable to a form called *desmotus* Tomlin, 1937, the type locality thought to be Panama] Dredged in Portobelo Bay, Caribbean Panama, in 200-240 feet. a) 35mm., ex. coll. R. G. b) 36mm., ex. coll. K. S. Coomans, Moolenbeek & Wils (1985) consider this as a subspecies of *cedonulli*, and restrict the range to the mainland coast from Panama to the Testigos Islands, Venezuela.
18. *Conus curassaviensis* Hwass, in Bruguière, 1792 — 37mm. Aruba, scuba, in 3 meters under rocks, leg. K. S., ex. coll. K. S. Endemic to Aruba. Note the convex outline of the body whorl.
19. *Conus mappa cf. trinitarius*? — 41mm. Malmok, Aruba, leg. K. S., ex. coll. K. S. This specimen has often been called *cedonulli insularis*, but is most closely referable to *mappa trinitarius*. It is from much further west, though, out of *trinitarius*' recorded range.
20. *Conus aurantius* Hwass, in Bruguière, 1792 [black form] — 57mm. West coast of Curacao, Netherland Antilles. Ex. coll. R. G.
21. *Conus aurantius* Hwass, in Bruguière, 1792 [golden form] — 59mm. Live-taken, Malmok, Aruba, leg. K. S., Ex. coll. K. S. Vink & von Cosel (1985) do not record *aurantius* from Aruba. de Jong & Coomans (1988) record it from Bonaire and Curacao, but rare in Aruba.
- 22a., b. & c. *Conus mappa granarius*? Kiener, 1848 [see #17a. & b. above, three additional color forms] — a) & b) 29mm, Coll. S. R. c) 32mm, Coll. K. S.
23. *Conus harlandi* Petuch, 1987 [PARATYPE] — 32mm. Utila, Bay Islands, Honduras, leg. K. S., ex. coll. K. S. Possibly another in the *cedonulli/mappa* complex, which would extend the range of this group.
24. *Conus archon* Broderip, 1833 [a juvenile specimen mimicking *mappa granarius* #12] — 42mm. Dredged off Guaymas, Sonora State, Mexico. Ex. coll. R. G.

\*Worldwide Specimen Shells, P.O. Box 137, Fresh Meadows, NY 11365.

(Nomenclature & Distributions re: Vink & von Cosel, 1985-2)

### ABBREVIATIONS FOR COLLECTIONS MENTIONED IN CAPTIONS:

K. S. — Kevan Sunderland  
S. R. — Suzi Rogers  
K. E. — Ken Ehalt  
R. G. — Richard Goldberg

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- , 1985. Alphabetical revision of the (sub) species in recent Conidae. 7. cingulatus to cylindraceus... *Basteria* 48(6): 223-311 (treatment of *curassaviensis*).
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## EDITOR TO EDITORS...

At the COA Convention in Melbourne, club newsletter editors had an informal meeting to share information and to get to know one another. In spite of (or perhaps because of) a local power failure, cutting off lights, phone and air conditioning, we had a great time and learned a lot. We plan to continue the dialogue at future conventions, and hope you can be present to contribute and learn your share at the next COA Convention.

One result of the meeting was a project Mary Owen, co-editor of the Chicago Shell Club publication, **Thatcheria**, has undertaken: to assemble and distribute a list of all the club publication editors and their home addresses, so that direct communication is easier. She asks that you please send her your address as soon as possible so that she can complete the project and send your list. Write to her at 3021 South Michigan Avenue # 508, Chicago, IL 60616.

If you are not already exchanging publications with COA and would like to do so, please write to the editor, Lynn Scheu, 1222 Holsworth Lane, Louisville, KY 40222. We encourage this exchange, separate from and probably in addition to your club's membership in COA for several reasons:

First, our publication goes directly into your hands, helping you stay up-to-date on COA news for your members, and giving you a quarterly shell information resource. Your club is probably a COA member already, receiving a copy of **American Conchologist** for the members' use. This exchange copy is primarily for your use. All **American Conchologist** articles are available for republication. (It was requested at our Editors' meeting that, when reproducing articles from other publications, you remember to notify the original publication that you have done so, and send a courtesy copy to the author.)

Second, the exchange benefits both your club and COA by letting us know what is going on in your organization, what your needs and problems are, what your successes are. This helps COA to set its own policies and goals, in line with the needs of clubs and collectors everywhere.

And finally, exchange makes your publication eligible for our occasional feature, "Best of the Newsletters," in which we showcase an article from among those published in club newsletters.

LYNN

## OF SEA AND SHORE TO RESUME PUBLICATION

Tom Rice, editor and publisher for **Of Sea and Shore Magazine** from 1970-1983, announces that his well-known quarterly will resume publication this fall. Subscription rates are \$12.00 per year U.S., \$17.50 elsewhere, bulk or surface mail. Alternative delivery rates are available. For more information, write Tom Rice, P.O. Box 219, Port Gamble, WA 98364. Welcome back, **Of Sea and Shore!**

## OUR COA CLUBS — A CLOSER LOOK

### The Chicago Shell Club

On September 20, 1964, 81 people met at the Field Museum of Natural History in Chicago, Illinois and, under the tutelage of the late Dr. Alan Solem, Curator of Invertebrates at the Museum, formed the Chicago Shell Club. Dr. Solem not only discussed the formation of other shell clubs and their aims, but also became the club's sponsor at the museum, thereby providing the kind of help most needed to get a club started — a central meeting place in the Museum itself. He sponsored annual exhibits of members' shells at the museum, thus fostering new members. His sustained support over the ensuing years was invaluable. He gave outstanding programs at club meetings, wrote articles for the club's newsletter, and even persuaded the club to host an American Malacological Union convention in Marinette, Wisconsin, when the Chicago Shell Club was the youngest club in the A.M.U.

A few years ago, changes in the availability of lecture rooms at the museum made it more convenient to meet in the Education Center of the Shedd Aquarium (1200 Lake Shore Drive), a rather appropriate meeting place for a shell club. Meetings are usually at 1 p.m. the second Sunday of the month from September through June, EXCEPT when the Chicago Bears play a home game, which creates major traffic jams (a case of gridiron causing gridlock!).

Other meeting changes occur in December, when the club has dinner and an auction at a restaurant; May, when an auction is held at another site; and one other time, when the meeting is held at the home of a member with an extensive shell collection for a potluck supper and an opportunity to view the collection. Club monthly meetings are very lively, and many of their programs feature speakers from around the shell world.

The club shell is *Thatcheria mirabilis* Angas, 1877 and is displayed on the club's pins; their newsletter masthead is **Thatcheria**. Besides pins, the club also offers T-shirts and sweatshirts.

Club membership runs about 100, divided fairly evenly between families and singles. Many members are divers and photographers, and some fascinating programs have come from them. Others are "armchair collectors," and still others are shellcrafters. Most of the club's members spend their vacations in shell-related activities. Many also represent their club at aquarium or local library activities, which help recruit new members.

The club itself does not have a shell show, but some of its members participate in the Indianapolis, Crown Point and St. Louis shows. Field trip opportunities in the Midwest are not abundant, but the club has traveled to the Mississippi River for fresh water shells and land snails.

For those of you who would like to join the Chicago Shell Club, dues are \$15.00 (family) and \$10.00 (single) and should be sent to Jack Frank, 337 Western Avenue, Clarendon Hills, Illinois 60514. And if you should be passing through Chicago and would like to attend a meeting, please call (312) 225-4261 to verify the meeting place and time. All visitors are most welcome. — Nancy Gilfillan

## BROWARD SHELL SHOW RETURNS

The 1991 Broward Shell Show will be held February 1-3, 1991 at the Pompano Beach Recreation Center, 1801 N.E. 6th Street. Broward was forced to cancel their 1990 show because the Recreation Center was being renovated. Welcome back to the shell show circuit, Broward!

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS

## ALAN SOLEM AND THE SHELL MAKERS

by Lynn Scheu and Richard L. Goldberg

Caption Text and Photos by Richard L. Goldberg

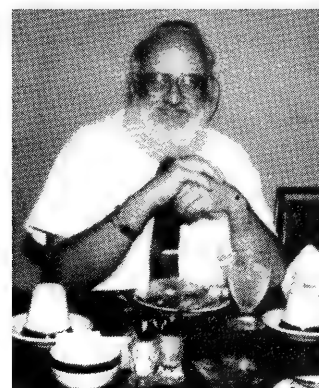


photo by Don Young

Last February 26, one of the malacological giants of the 20th century died unexpectedly. Alan Solem, Curator of Lower Invertebrates at the Field Museum of Natural History, had reason to expect, at just 59, that he had many productive years ahead to devote to an already illustrious career. But a massive coronary struck him suddenly at his home in Chicago last February, depriving the malacological world of the products of his curiosity and his genius.

In spite of great prominence in his chosen field, Alan Solem was not well-known among collectors. With no cone species to his credit, nor any volutes to bear his name, he was an authority on a relatively neglected group of mollusks, the land shells, particularly the Endodontidae of Pacific Islands and Camaenidae from the Kimberley Block of the Australian Outback. In the ordinary way of things, we would barely have heard of him.

Yet such was his stature that we too felt his influence. Land shell collectors knew him as the author of dozens of new genera and hundreds of species of land shells. Amateur malacology students knew him as the author of a literate, informative and charming book on the molluscan animal, *The Shell Makers*, and many popular articles. The Chicago Shell Club knew him as one of the founders of their club, and their longtime mentor. Many other clubs knew him as a lecturer of presence and wit who piqued their interest with fascinating molluscan lore. COA members who attended the 1987 convention in St. Louis remember him as a banquet speaker who held our imaginations captive to his enthusiastic and contagious passion for all things molluscan.

To the professional community Solem was a world authority on land snail classification, evolution, distribution, anatomy and biology, as well as a prolific author of some 150 technical and scientific papers, totalling 4,500 pages. Indeed, at the time of his death, he had three more monographs in press — two more volumes of his study on Camaenid land snails of Western and Central Australia, and a two-part monograph on those of Southern and Eastern Australia — and was planning further studies of evolutionary relationships in Australian fauna.

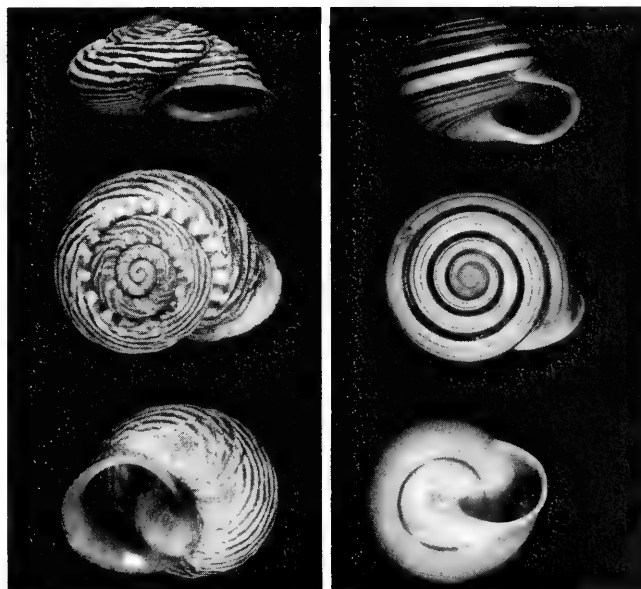
As a scientist, Alan Solem was fascinated by the diversity of molluscan life. He viewed this diversity as a series of problems in living that had been solved by the ingenuity of evolution. His popular book, *The Shell Makers*, is a step-by-step, closely argued examination of these problems and their solutions, from the origins of the family Mollusca in Pre-Cambrian times 600-700 million years ago, down to the present, and from the primitive evolving mollusk, through such "living fossils" as the Neopilina and Pleurotomaria, to the apex of molluscan life, the Cephalopoda. He leads us on a journey from the warm shallows of the primordial seas up onto wave-pounded rocks, into freshwater lakes and rivers, and finally out onto land and into the trees. He shows us how it all happened, and tells the story in such a clear, reasoned voice that we are constantly exclaiming as we read, "Aha! So that's what happened! Why, of course that's how it is!"

Always an ardent land shell enthusiast, Solem acquired an interest, early in his career, in the diversification of species. He

studied fossils of the Isthmus of Panama and land mollusks of Southern Brazil to understand more about the spread of species from North to South America. Then, looking into the question of speciation on small islands in the Pacific, he investigated the way in which closely related species evolved from a common ancestor by diversifying their habits. This study led him to one of his lifelong efforts: the in-depth examination of the reproductive and the food-getting anatomy and behavior of the snails under his scrutiny.

**Fig. 1: *cf. Pleuroxia* sp. — 14mm.** Being described by Solem (in press?) under a new genus, and a new species. From Yardi Creek, Cape Range, North West Cape, WESTERN AUSTRALIA, sealed to limestone rocks, Note the similarity to *Pleuroxia* (cf. *nova* genus) *ruga*, Fig. 7. Solem's meticulous and extensive field and laboratory work brought about the discovery of over 100 new camaenid species in these remote localities. Anatomical differences were evident, but morphological characteristics in some species are often amazingly similar as is the case with this new species.

**Fig. 2: *Rhagada* nova species — 19mm.** Being described by Solem (in press?). From Yardi Creek, Cape Range, North West Cape, WESTERN AUSTRALIA; taken under spinifex. Banding is extremely variable. Most Australian *Rhagada* live in the Dampierland to Carnarvon region. Solem had planned to publish an in-depth survey of the *Rhagada* in Volume VII of his series on the Australian Camaenidae. At the time of his death only Part V was published. The fate of Parts VI and VII are not known; they were reportedly complete, but it is not known if or when they will be published.



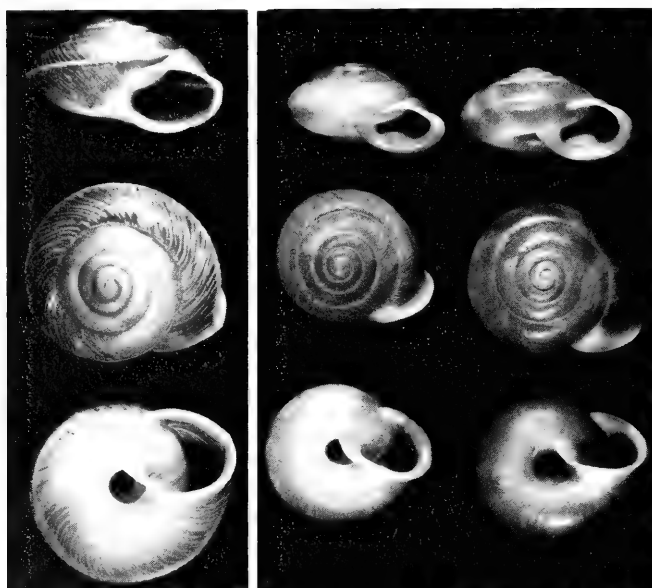


Fig. 3: *Carinotrachia carsoniana* Solem, 1985 — Putairta Hill, 2 km. NNE of Carson River Crossing, south of Kalumburu, north WESTERN AUSTRALIA, sealed to rocks at base of vine thicket. Type species of genus also described by Solem in 1985. Most often confused with *Turgenitubulus pagodulus* (see *Compendium of Land Shells* p.21) from the Ningbing Ranges. *C. carsoniana* is only known from the Carson River Crossing area. The keeled periphery, prominent ribbing and simple lip help separate *Carinotrachia* from other similar genera. This is the only species in the genus. The importance of anatomical characteristics in Solem's work was just as important as shell characteristics.

Fig. 4: Two Closely Related Genera — (left) 15mm. *Turgenitubulus costus* Solem, 1981 — Specimen taken 2.6 km. south of Tanmurra Bore, Ningbing Ranges, north of Kununurra, WESTERN AUSTRALIA, under limestone rocks [type locality] (right) 17mm. *Ningbingia dentiens* Solem, 1985 — taken 1.8 km. NNW of Number 8 Bore, Ningbing Ranges, East Kimberley, WESTERN AUSTRALIA, under limestone rocks. This species is one of a number of free-sealers, which secrete a film of calcified mucus across the aperture of the shell, whereas other species aestivate tightly sealed to boulders in large rock talus. This photo shows just how similar the evolution of certain geographically related groups are. Solem writes. . . "*Turgenitubulus* is thus an anatomically compact unit, showing major differences from its geographic neighbours, although sharing many shell features with them." Without close anatomical studies; many of these new species were overlooked because of the extreme similarities of their shell characteristics. Solem described both *Ningbingia* and *Turgenitubulus* as new genera in 1981 with five new species in each genus.

But such dry-seeming accumulations of data led him to exciting conclusions. As anyone who ever heard one of his talks on molluscan diversity can attest, after seeing slide upon slide of apparently identical shells with different names, Alan Solem put the romance back into his charts and figures, indeed, back into molluscan reproductive behavior. He showed, with carefully drawn diagrams and impeccably constructed logic, that this species **HAD** to be different from that species, because, no matter how much they looked alike, no matter how closely they were related, they were kept from interbreeding by actual and measurable physical differences. They had protected their species integrity by erecting physical and in some cases behavioral barriers to genetic introduction from outside their own species.

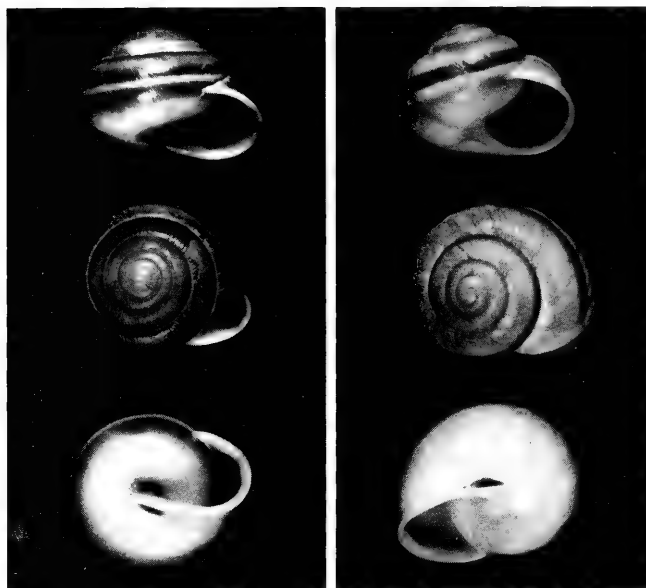


Fig. 5: *Amplirhagada castra* Solem, 1981 — 19mm. 2 km. east of AMAX Crusher, Mitchell Plateau, WESTERN AUSTRALIA, under rocks, in vine thicket. Just one of the many beautiful representatives of this genus. Solem has named approximately 20 species and subspecies of *Amplirhagada* from the Kimberley area of W.A. There are many other unnamed species of *Amplirhagada* from this area and the offshore islands in the Bonaparte Archipelago, north Western Australia. Solem (1981) writes . . . *Amplirhagada* is in a stage of extensive speciation. While most species found in one locality are easily recognizable by shell features, there are many similarities among allopatric populations, and in a number of situations reference to soft parts is necessary for certain identification."

Fig. 6: *Quistrachia nova* species — 15mm. Being described by Solem (in press?) — from Upper Bulbarli Well, Warrora Station North West Cape, WESTERN AUSTRALIA, in leaf litter under fig tree. In 1985 Solem wrote, "Most species of *Quistrachia* are found in the area from the Pilbara to Carnarvon, and are undescribed."

And these in-depth analytical studies of subtle differences in anatomy led him to his interest in the scanning electron microscope. He was one of the very first to use this powerful tool in malacological studies.

His work on the Pacific land snails took him to many areas in the Indo-Pacific to study land snail populations, among the New Hebrides, Bikini and Eniwetok Atolls, Hawaii, Thailand, New Zealand, Western Samoa, Fiji, And Lord Howe Island. His studies showed that the smaller, more isolated islands surprisingly tended to have greater species diversity than larger, densely clustered islands.

Following the Endodontid work, Solem became fascinated with the Australian mollusks of the family Camaenidae. Here was the diversity principle at work again, complicated and intensified by the long periods of drought peculiar to the Outback regions, which forced molluscan species into dormancy and made feeding and breeding impossible except during short rainy periods. This study continued until his death and generated a multi-volume study of the Camaenids, still incomplete.

What sort of a man was he? From all accounts, he was difficult to know and reticent about his personal life, rather inclined toward the ivory tower of intellectualism. Rupert L. Wenzel, in his obituary of Solem in the May-June number of the Field Museum of Natural History Bulletin, said of him, "Alan was a very private individual. He was very sensitive. He could hold strong opinions and be very stubborn in holding to them when he felt that he was right."

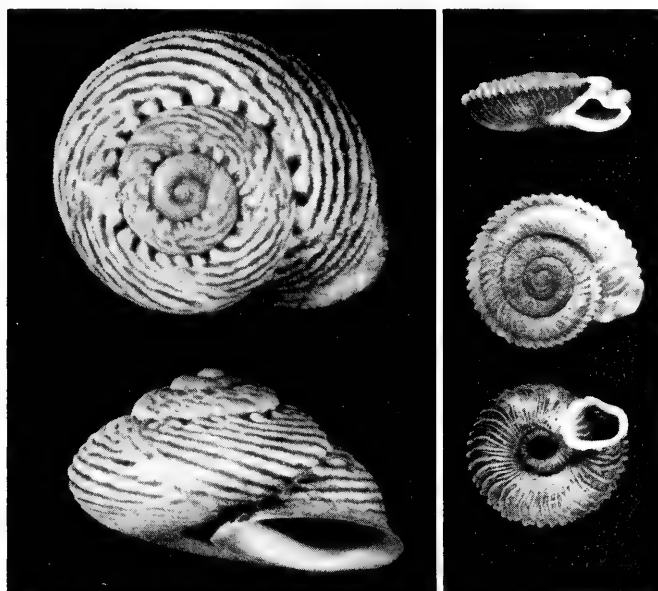


Fig. 7: *Pleuroxia ruga* (Cotton, 1953) — 13mm. Cape Range, at end of Charles Knife Road, North West Cape, WESTERN AUSTRALIA; sealed underneath limestone rocks. This species has been placed in a number of different genera by various workers since its description. Early workers placed *Pleuroxia* in synonymy with *Angasella*; more recent workers reversed, synonymizing *Angasella* with *Pleuroxia*. Solem (in press?) has described a new genus for this and its almost identical relative in figure 1. At a quick glance *ruga* is a generally smaller species, and has a more open umbilicus.

Fig. 8: *Mouldingia orientalis* Solem, 1984 — 10mm. 3 km. west of Lissadell Station, south of Kununurra, WESTERN AUSTRALIA. Solem described the genus *Mouldingia* with two species, *orientalis* and *occidentalis*, appropriately named since each occupies either an easterly or westerly distribution within its range, the latter only known from a range of 2.2 kilometers. *M. orientalis* differs from *occidentalis* in being slightly larger, with a greater whorl count, and having the lip attached to the parietal wall and reduced to a thin callus. Other than differences in the soft parts, both species are difficult to separate at a quick glance.

"He often played the devil's advocate. Yet he had a well-developed sense of humor, droll and sometimes quixotic. . ." Indeed. Once, on a speaking trip, his hostess found him prowling her library, her copy of his *The Shell Makers* in hand. He scolded her rather gruffly for having a cephalopod book plate in the flyleaf, peeled off the offending bit of paper down to the last speck of glue, threw it away, and sat down to write a very cordial inscription there, in his own hand.

"The research collections and facilities which he built are a monument to his dedicated efforts," says Wenzel. "He had enormous energy and drive. He was a perfectionist, methodical, and expected excellence from those under him. . . but at the same time they held him in esteem and affection. He was kind and caring." And so he built a large and devoted supporting staff at the museum.

For a man whose chosen work necessitated travel to remote areas with extreme climates, Solem was remarkably addicted to his comforts, and so disliked field work. When he could remain snugly at home with his graphs and specimens and SEM, he did so, leaving the actual collecting to others.

He was also an ardent and dedicated conservationist, as one would expect of a man who was so enthralled by the variation

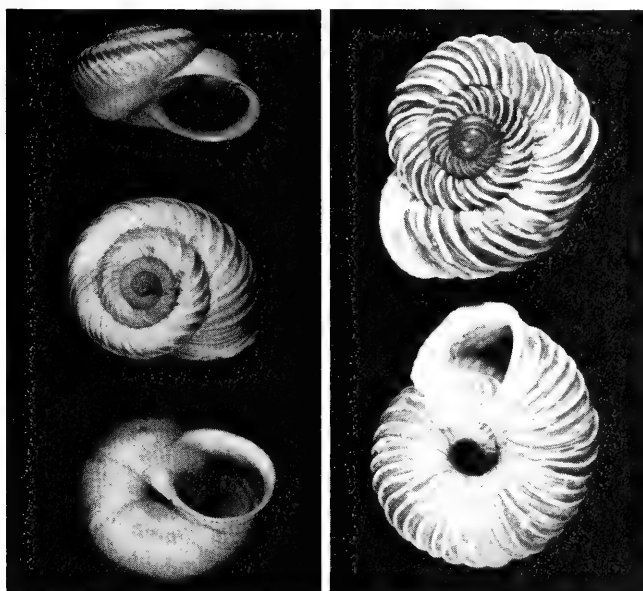


Fig. 9: cf. *Pleuroxia nova* species — 16mm. Being described by Solem as new species and in a new genus (in press?). Taken 14.5 km. NNW of the Overlander Roadhouse, southeast of Carnarvon, WESTERN AUSTRALIA, sealed underneath limestone rocks. One of numerous new genera created by Solem to classify the diversity of Camaenids inhabiting these remote regions of Australia.

Fig. 10: *Pleuroxia oligopleura* (Tate, 1894) — 15mm. behind Mundrabilla Repeater Tower, north of Eyre Highway Nullarbor Plain, WESTERN AUSTRALIA, in gully, sealed underneath limestone rocks. One of the really spectacular camaenid land shells that might have inspired Alan Solem to turn his energies toward researching the diverse and evolutionarily fascinating group.

among species. Many passages in *The Shell Makers* speak vehemently about the incompatibility of Western industrial civilization with the welfare of the myriad species of the earth. He was also an active and responsible academic, serving as AMU president and in many other professional capacities.

Solem began his malacology career as a boy in Oak Park, Illinois when an uncle brought him a collection of shells he had made on Midway and Tinian Islands during World War II. He eventually went to the Field Museum to identify them, and ended by presenting the shells to the museum. He began, age 15, as a volunteer there, working with insects, but, according to Rupert Wenzel, Curator Emeritus of Insects, "It was quite obvious from his behavior that this very bright and brash young man had no heart for insects."

Later he worked under world bivalve expert Dr. Fritz Haas at the museum, finding his real niche: and he went on to a distinguished college career at Haverford College and then the University of Michigan, studying there under Professor Henry Van der Schalie, working summers at the Academy of Natural Sciences in Philadelphia under Dr. Henry Pilsbry. In 1957, Solem returned to the institution which spawned his interest, the Field Museum of Natural History in Chicago where he soon became Curator of Lower Invertebrates, a position he held for the rest of his life.

Says Dr. R. Tucker Abbott, also at the Academy of Natural Sciences during the years when Solem was studying there, "One of his disappointments was not to have succeeded the great Henry A. Pilsbry. . . Time and providence, however, granted him the final eminence of being the world's leading land mollusk taxonomist. Pilsbry would have lauded his research accomplishments."



HAWAIIAN  
SHELL NEWSHAWAIIAN MALACOLOGICAL SOCIETY  
HONOLULU, HAWAII, U.S.A.

HSN through the years: (top to bottom) 1953-1959 (designed by HSN-COA member Reg Gage); 1960-1975; 1975-1978; 1979-

## LOOK WHO'S FORTY!

by Stuart Lillico

What is 40 years old, comes every month to shell collectors on five continents (plus Antarctica occasionally), and is produced by a handful of non-professionals on one of the world's most remote islands? It's **Hawaiian Shell News**, if you haven't already guessed.

**Hawaiian Shells News** in its first 40 years has published an unbelievably wide range of material dealing in some way with the world's mollusks. Some of it has been pretty light hearted, at times even tongue-in-cheek, but the total product is serious.

If I speak of **HSN** with a certain affection, it is because for fifteen years I sat in the center of the editorial bulls-eye. My successor, Dr. Tom Burch, already is acquiring the bemused look that has characterized all his predecessors.

I thought I knew editing, but my education was incomplete when I took over. Any of you who read **HSN** regularly will know that today I am something of a stickler on the protocol of publishing new species names and descriptions. This is the product of an early brush with the International Code of Zoological Nomenclature, of which I admit I knew little at the time.

As editor in the mid-1970's, I one day made a light-hearted decision to publish co-editor Ruth Fair's separation of previously unrecognized *Murex elliscrossi* — a new name — from *Chicoreus superbus*. **HSN** and I quickly came under severe attack for invading the world of the "scientific" journals. A member of our editorial board actually resigned in protest. I suspect I'd have been fired if a replacement as editor had raised his head. Amazed at the worldwide attention our action had attracted (but secretly delighted, I must admit), we humbly agreed never to do THAT again.

Feeling the need for a memory-refresher before starting this article, I dug out the file of **HSN** back issues. All my normal activity ceased for a couple of weeks while I reread reports (some continued through several issues) of collecting expeditions to faraway islands, comparisons of baffling *Cypraea* species, ribtickling gossip about early Hawaiian Malacological Society members, impassioned arguments about valid and invalid species names, descriptions of famous museums, news of shell finds, biographies of famous malacologists, Art Weil's zany poetry, and pleas to turn the rocks back after examining them for shells. It was an eye-opening experience.

"**Hawaiian Shell News** can be read without having to refer to a scientific dictionary," editor emeritus Ellis R. Cross wrote 30 years ago. "It is technically correct, but it is not a technical publication."

My rereading of the 40 year record made it clear that that philosophy actually had guided the newsletter from its beginnings fifteen years earlier, and it generally applies today. If there is a single secret to the journal's continued success, Cross's statement sums it up. **HSN** may well be the world's most widely read

AN EDUCATIONAL PUBLICATION OF THE HAWAIIAN MALACOLOGICAL SOCIETY



AN EDUCATIONAL PUBLICATION OF THE HAWAIIAN MALACOLOGICAL SOCIETY



Present (with some minor modifications here and there...where's New Zealand?)

vehicle for **news** about shells and shelling. For 40 years now, scientists and amateur collectors alike, residing in all but half a dozen U.S. states, clear across Canada, in Mexico, around the Caribbean, and Latin America, in every West European nation (plus some in dollar-starved Eastern Europe), and throughout coastal Africa, the Near East, East Asia, Oceania and the South-western Pacific, have been paying good money to receive **HSN** regularly — often by airmail at a substantial premium.

"We write for our overseas members," former Associate Editor Elmer Leehman often reminded us. "Less than 10 percent of the Hawaiian Malacological Society's membership is in Hawaii. One quarter live outside the United States. Don't let **HSN** become a cozy local newsletter, full of 'inside' references."

For years Leehman carried on a daunting correspondence with shell people worldwide. From this came his countless **HSN** articles, news flashes, editorial lectures on collecting, exchanging and merchandising practices, and some remarkably acute forecasts of shelling developments.

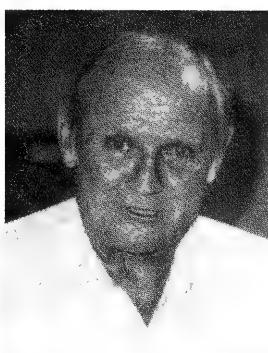
For a shell club newsletter destined for worldwide readership and an impressive stable of writers, **Hawaiian Shell News** had an extremely modest beginning. Its shaky progress through the early years can be traced by the unpredictable and frequently confused volume and issue numbers.

The Hawaiian Malacological Society was formed late in 1941 as a successor to at least two earlier groups of Hawaii shellers. Less than a month later the Japanese attack on Pearl Harbor almost snuffed it out. A beach patrolled by a bunch of nervous sentries was no place to look for shells. But with the end of hostilities four years later, founding member Charles A. (Chuck) Allen called together survivors for another try. From the moment, **HMS** went forward.

Allen in 1947 published a typewritten newsletter with a hand-drawn cover, reproduced on a Ditto machine. ("Only about 35 copies were printed," an old timer recalls.) Two names famous in Hawaiian malacology — Paul Bartsch and Harald Rehder — contributed an article on Hawaiian cones. Later that year, Allen put out his second issue — and it had photos!

The "Allen papers" appeared sporadically for the next five years. Regrettably, no one seems to have made a systematic collection, so that today copies are not easily accessible. By March, 1952, however, The Allen papers had evolved into the forerunner of **Hawaiian Shell News**. (The name, however, didn't appear until a year later.) Mrs. Evelyn Gage (now Gerish) was the first editor, and Dr. C. M. "Pat" Burgess, today's "Mr. Cowries," was on her editorial committee. The now eight-page mimeographed publication was being distributed without charge to all 71 **HMS** members, plus four honoraries, at club meetings.

The late Karl Greene, a retired newsman, took over from Mrs. Gage after two gruelling years. Greene set the tone of informal gossip writing on serious subjects that generally has stayed with



LEFT:

Evelyn Gage, Editor *HSN* 1953-1955.Karl Greene, Editor *HSN* 1956-1961.Ellis Cross, Editor *HSN* 1961-1962; Co-editor 1962-1963; Editor 1967-1974; current Editor Emeritus

RIGHT:

Clifton Weaver, Co-editor *HSN* 1962-1963; Editor 1964-1966Stuart Lillico, Editor *HSN* 1975-1987; current Editor EmeritusTom Burch, Editor *HSN* 1987-present.

us. *HSN* soon was publishing "good, solid shell stuff," another old-time member recalls. "It didn't ever take itself too seriously."

For example: "When hunting seashells, place the small ones in pants pockets," wrote high school-age Reg Gage, son of editor Evelyn Gage. "On arriving home, put clothes in the hamper. On laundry day run the clothes through the washing machine, then search pockets for shells. If they are suitable for your collection, clean them again in the usual way."

Reg Gage, incidentally, is still an *HMS* member and occasionally writes for *HSN*. While in high school he designed and executed the original *Hawaiian Shell News* cover page and Triton's trumpet logo.

Before the year was out, Jens Ostergaard, Hawaii's resident shell expert, had authored an unabashed critique of *Fishes & Shells of the World*, John Nichol and Paul Bartsch's attempt to be all-inclusive. And young Gage put forward a well-reasoned denial that *Cypraea ostergaardi* could be a subspecies of *C. alleni*, as a previous *HSN* author had suggested. (Reg. was right, *C. alleni* subsequently was put in synonymy with *C. ostergaardi*.)

Those early issues saw the genesis of what became traditional *HSN* features. Listing of record shell sizes began in 1953, a decade before the institution was picked up by Tucker Abbott and Robert Wagner in their first *Standard Catalog of Shells*. (The debate over "record size" vs "largest reported" began almost immediately.) The long-running argument about the subspecific validity of Hawaii's giant *Cypraea tigris schilderiana* broke into print about the same time. Dr. Vernon Smith decried the "disappearance" of shallow-water shells. The first "Recent Finds" column appeared, starting a tradition that continues (haltingly) to the present.

*Hawaiian Shell News* in January, 1960 made its debut in what is essentially its present format. The old mimeograph was abandoned; articles were set in real type and printed by offset. Recognizable photos became possible. Page one had a new shell-decorated logo. The inaugural issue had messages of congratulation from as far away as Germany.

That logo, incidentally, lasted about fifteen years. One of the changes I made when I became editor was to substitute an impressionistic map of the Indo-Pacific to suggest our broader coverage. Somehow, New Zealand got left out, as a surprising

number of members were happy to tell us. There was a hasty correction. Three or four years later the printer inexplicably restored the original map. Don't think for a moment that *HMS* members don't read EVERYTHING in *HSN*!

Failing eyesight finally sidelined editor Karl Greene and Ellis R. Cross stepped in. A professional diver, a natural-born writer and a sharp observer of nature, Cross had a strong influence on both *HSN* and the Society for the following 20 years.

Clifton Weaver, senior author-to-be of the classic *Living Volutes*, soon joined Cross as co-editor. The two recruited a high-power set of associate editors that included Commander William Christensen, then director of the Honolulu Children's Museum, Dr. C. M. Burgess, subsequently author of *The Living Cowries and Cowries of the World*, and Dr. E. Alison Kay, already working on her encyclopedic *Hawaiian Marine Shells*. Untypically for club newsletters, all were active in writing for *HSN*.

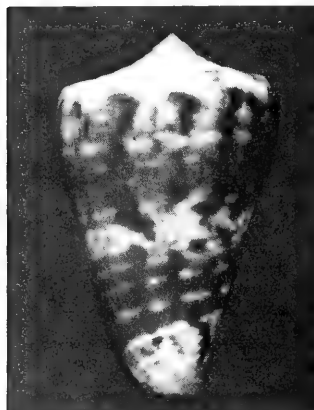
Indefatigable Evelyn Gage accepted the often onerous job of handling the monthly mailing — up to nearly 450 copies by then. In time, she was followed by the late "Ibby" Harrison, the long-term den mother for the *HSN* staff and, indeed for the entire *HMS* membership. While the editors got the glory (if any), Evelyn and Ibby in the many jobs they accepted usually made it all work.

That statement is no mere hyperbole. The volume for 1969, for example, contained material from Dr. Tadashige Habe of Japan, John Orr (in Thailand at that time), the late Dr. Franz Schilder of Germany and his wife Maria, W. O. Cernohorsky of New Zealand, Peter Oliver of London, P.M. Nielsen reporting from microscopic McKean Island in the Phoenix group in the Central Pacific, John Holeman and Ormand McGill in a joint "Conus-Corner" series, Dr. Sadao Kosuge of Japan, Twila Bratcher of Los Angeles, Dr. E. Alison Kay of Honolulu, Professor Jerry Donohue of Philadelphia, Elizabeth Kinloch in South Africa, the late Kirk Anders of Florida, Hans-Heinrich Heinicke of Bremen, George Markens of Paris, Hanna Dale in the New Hebrides (today's Vanuatu), Hal Lewis of Philadelphia, Dr. Jean-Claude Astary in the Marquesas, Phil Clover of California (on duty in the Far East), Dr. Tokio Shikama of Japan. Mary Saul in Sarawak, Borneo, Peter van Pel in the Netherlands, R.P. Scase of London, Mora Williams at Jeddah, Saudi Arabia, the late Col.

(Cont. on page 23)

## CARIBBEAN CONIDAE

by Kevan Sunderland



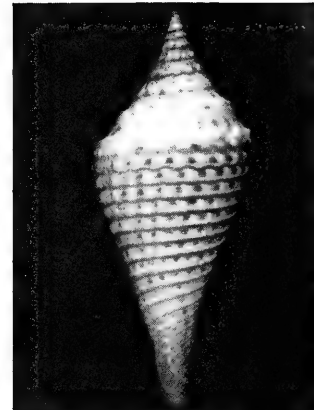
*Conus abbotti* Clench, 1942. 38mm. 1', Eleuthera, Bahamas.



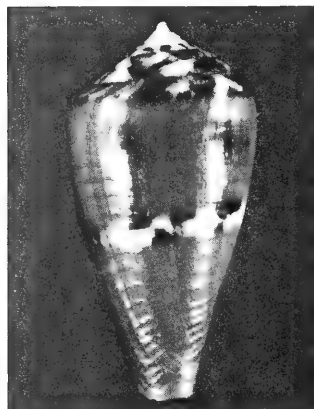
*Conus amphiurgus* Dall, 1889. 47mm. 200', Cape Canaveral, Florida



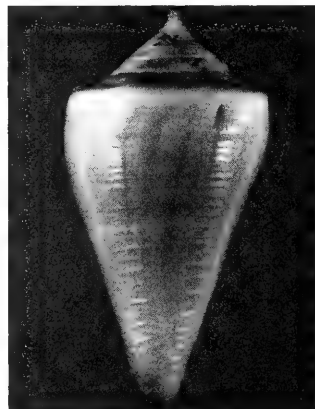
*Conus arangoi* Sarasua, 1977. 34mm. 100', Cay Sal, Bahamas.



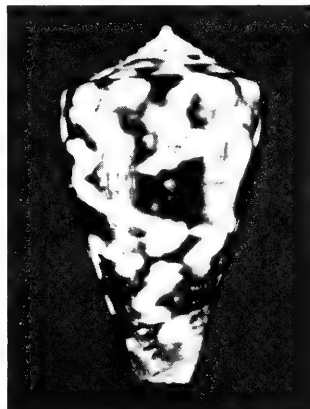
*Conus armiger* Crosse, 1858. 37mm. 90 fms, 100 mi. s. of Cape San Blas, Fla.



*Conus cardinalis* Hwass, 1792. 29mm. 70', N. coast of Jamaica.



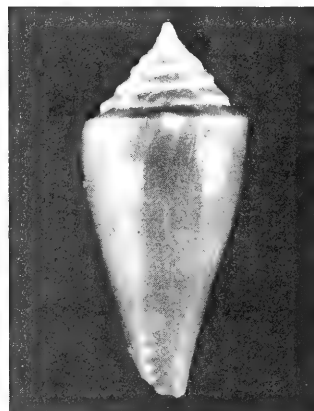
*Conus caribbaeus* Clench, 1942. 32mm. 20', Key Largo, Fla.



*Conus explorator* Vink, 1990. 25mm. N. coast of Jamaica.



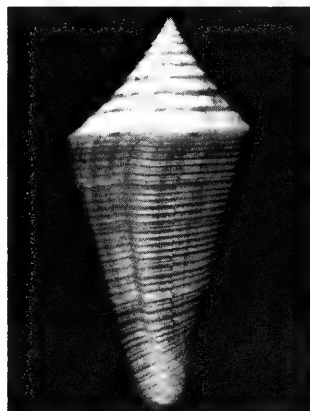
*Conus c.f. exquisitus* Sowerby, 1887? 27mm. 50', New Providence, Bahamas.



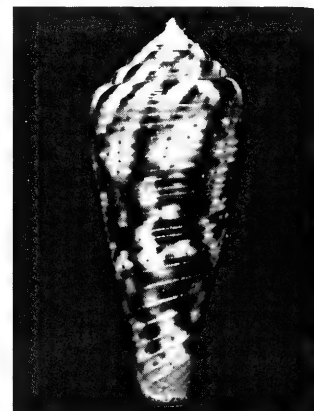
*Conus flamingo* Petuch, 1980. 19mm. 310', Broward County, Fla.



*Conus flavescens* Sowerby, 1834. 22mm. 60', Palm Beach, Fla.



*Conus garciai* daMotta, 1982. 68mm. 160', off Punta Patuca, Honduras.



*Conus granulatus* Linne, 1758. 46mm. 40', Utila, Honduras.

The intent of these centerfolds is not necessarily to distinguish among valid and invalid species, but to provide illustrations of taxa not popularly available, for the information of the collector.

\*P.O. Box 130243, Sunrise, FL 33313.

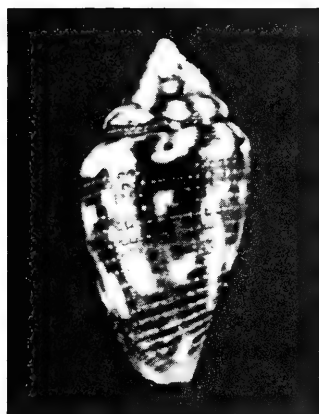
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 —, & W. Harland, 1986. A new *Conus* (Prosobranchia: Conidae) species found in the Bahamas. (6): 19-22.

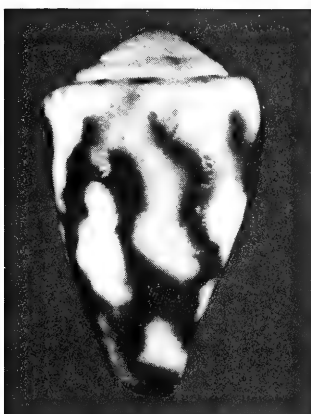


## Acknowledgements:

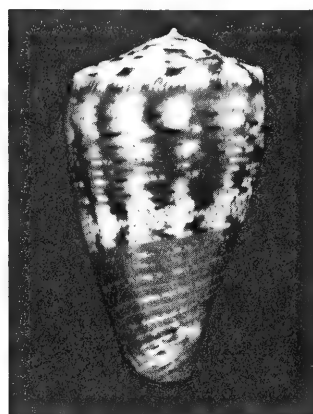
A special thank you to Mr. Dieter Cosman of Ft. Lauderdale and Mr. Daniel Warren of Palm Beach for their assistance.



*Conus hieroglyphus* Duclos, 1833. 15mm. 20', off Mal-mok, Aruba.



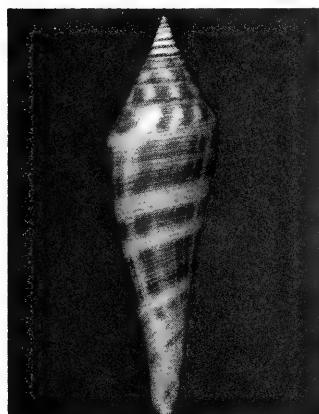
*Conus kirkandersi* Petuch, 1987. 19mm (Paratype). 5', Cozumel Is., Mexico.



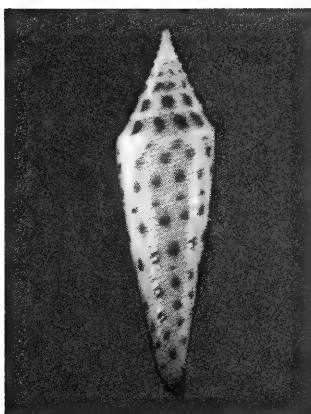
*Conus kulkulcan* Petuch, 1980. 33mm. 20-30', Roatan, Honduras.



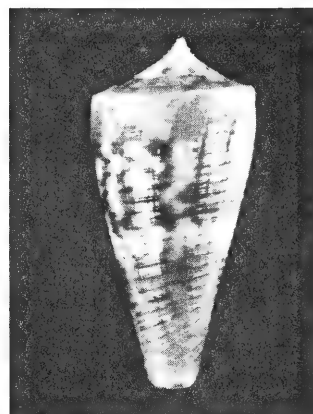
*Conus magellanicus* Hwass in Brug., 1792. 18mm. 20', Guadeloupe.



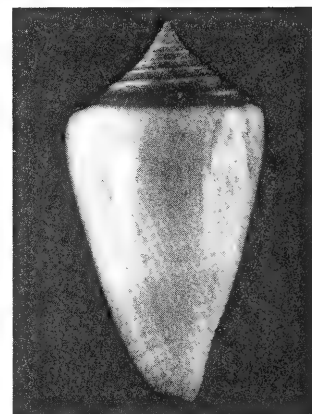
*Conus mazei* form *macgintyi* Pilsbry, 1955. 51mm. 100 fms., Key West, Fla.



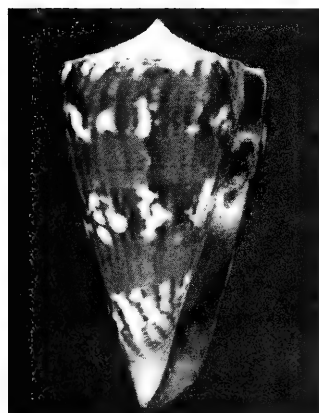
*Conus mazei* Deshayes, 1874. 33mm. 500', off Sandy Lane, Barbados.



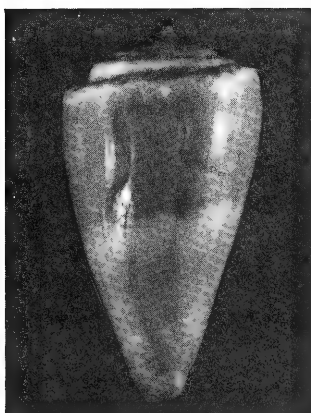
*Conus patae* Abbott, 1971. 28mm. 30-40', N. coast of Jamaica.



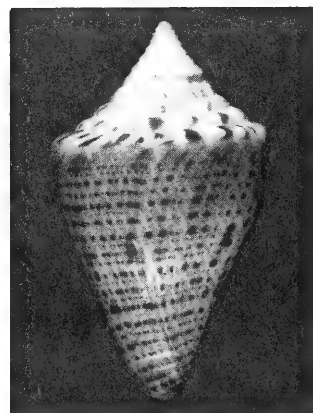
*Conus penchaszadehi* Petuch, 1986. 39mm. 350', Gulf of Venezuela.



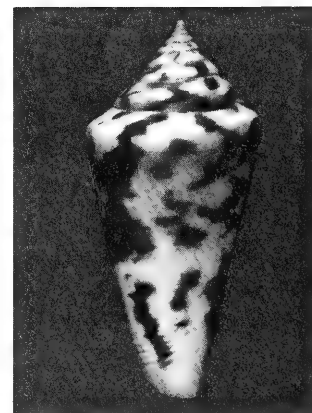
*Conus riosi* Petuch, 1986. 50mm. 200', Gulf of Campeche, Mexico.



*Conus sahlbergi* daMotta & Harland, 1986. 19mm. 40', Cat Cay, Bahamas.



*Conus sennottorum* Rehder & Abbott, 1951. 46mm. 200', Contoy, Mexico.



*Conus tostesi* Petuch, 1986. 40mm. 50', Rio de Janeiro, Brazil.

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Petuch, E. J., 1980a. A new Falsilyria (Volutidae) and a new *Conus* from Roatan Island, Honduras (Atlantic), Nautilus, 94 (3): 115-118.

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Sarasua, H., 1977. Dos Nuevas Formas Cubanas del Genero *Conus* (Mollusca: Neogastropoda), Poeyana, 165: 1-5.

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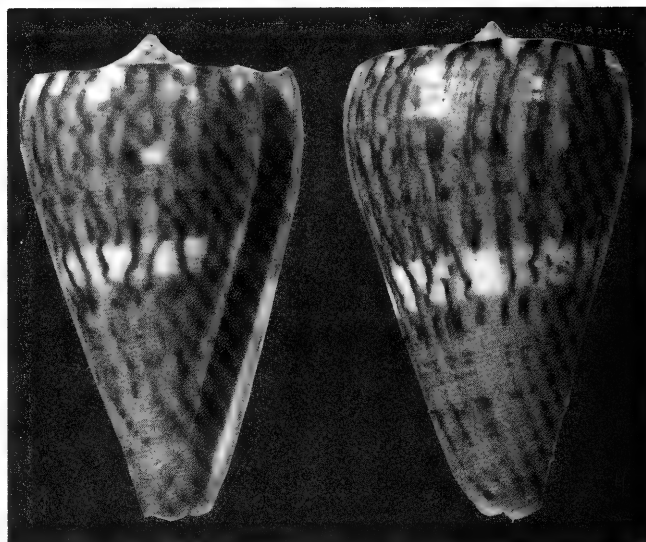
# RECENTLY INTRODUCED NAMES IN THE FAMILY CONIDAE

by Walter E. Sage III

This listing follows my earlier reports on new cone names that appeared in **Hawaiian Shell News** for June 1982 and June 1983, and covers the period from January 1, 1977 to August 1, 1990. The purpose of this note is merely to call to the attention of those interested in cones the existence of these names and to give brief citation of the publication in which these names first appeared. No attempt is made to establish which names were validly introduced or which names represent valid species. I have personally examined each publication cited, and believe this listing to be complete.

The writer is grateful to the authors who have supplied copies of their publications, especially to Henry Coomans, Roland Houart, Alan J. Kohn, Robert Moolenbeek, A.J. (Bob) da Motta, Dieter Roedel and John K. Tucker, without whose assistance this compilation would not have been possible. Readers are asked to communicate any names that may have been overlooked, and to write for additional information that may be at my disposal. Those names preceded by an asterisk represent western Atlantic species. The type locality for these taxa only follows these names in parentheses.

- \*abrolhosensis Petuch, 1987 — New Caribbean Molluscan Faunas, p.142 (Brasil)
- adami Wils, 1988 — Gloria Maris 27 (5-6), p.83
- agulhasi Coomans, Moolenbeek & Wils, 1980 — Basteria 44(1-4), p.20
- albellus Roedel & Korn, 1990 — Acta Conchyliorum 2, p.11
- albuquerquei Trovao, 1978 — Centro Portugues de Actividades Subaquaticas 4(4), p.11
- alconnelli daMotta, 1986 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 7, p.5
- alexandrinus "Paes da Franca" Kaicher, 1977 — Card Catalogue of World-wide Shells, Pack 13, Conidae Part III, Card 1293
- ambaroides Shikama, 1977 — Science Reports Yokohama National University 24, p.20
- \*antillensis Sander, 1982 — The Veliger 25(2), p.149 (Barbados)
- antoniomonteiroi Rolan, 1990 — Iberus, suppl. 2, p.47
- aphrodite Petuch, 1979 — Nemouria 23, p.11
- \*arangoi Sarasua, 1977 — Poeyana 165, p.1 (Cuba)
- arbornatalis daMotta, 1978 — The Centre of Thai Natural Study, suppl., p.7
- asiaticus daMotta, 1985 — La Conchiglia 17(192-193), p.25
- auratus daMotta, 1982 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 10, p.19
- \*aureonimbos Petuch, 1987 — New Caribbean Molluscan Faunas, p.17 (Florida)
- \*aureopunctatus Petuch, 1987 — New Caribbean Molluscan Faunas, p.110 (Venezuela)
- axelrodi Walls, 1978 — The Pariah 2, p.1
- baileyi Roedel & daMotta, 1979 — La Conchiglia 11 (124-125), p.9
- bangladeshianus daMotta, 1985 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 4, p.6
- \*bayeri Petuch, 1987 — New Caribbean Molluscan Faunas, p.14 (Colombia)
- bazarutensis Fernandes & Monteiro, 1988 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 10, p.19
- behelokensis Lauer, 1989 — Rossiniana 43, p.13
- belairensis Pin & Leung Tack, 1989 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 14, p.33
- bellulus Rolan, 1990 — Iberus, suppl.2, p.44
- benten Shikama & Oishi in Shikama, 1977 — Science Reports Yokohama National University 24, p.21
- \*binghamae Petuch, 1987 — New Caribbean Molluscan Faunas p.29 (Florida)
- bitleri daMotta, 1984 — La Conchiglia 16(178-179), p.24
- bizona Coomans Moolenbeek & Wils, 1981 — Basteria 45(1-3), p.16
- blatteus Shikama, 1979 — Science Report Yokosuka City Museum 26, p.1
- boavistensis Rolan & Fernandes in Rolan, 1990 — Iberus, suppl.2, p.23
- bocagei Trovao, 1978 — Centro Portugues de Actividades Subaquaticas 4(4), p.17
- boholensis Petuch, 1979 — Nemouria 23, p.12
- borgesii Trovao, 1979 — Amphitrite 1, p.6
- boucheti Richard, 1983 — Journal of the Malacological Society of Australia 6(1-2), p.53
- \*boui daMotta, 1988 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 11, p.41 (Martinique)
- brettinghami Coomans, Moolenbeek & Wils, 1982 — Basteria 46(1-4), p.39
- brontodes Shikama, 1979 — Science Report Yokosuka City Museum 26, p.4
- \*Department of Invertebrates, American Museum of Natural History, New York, NY 10024



*Conus boui* daMotta — a recently described Caribbean cone from Martinique and Barbados. The 30.2mm holotype is golden brown on white with darker brown axial streaks and spots, continuing over a white mid-body band. (photo by Mr. G. Dajoz, Geneva, from **Occasional Publications of the Portuguese Malacological Society 11**, 1988)

- calhetae Rolan, 1990 — Iberus, suppl.2, p.41
- calliginosus Shikama, 1979 — Science Report Yokosuka City Museum 26, p.5
- capreolus Roedel, 1985 — Archiv fuer Molluskenkunde 115(4-6), p.267
- \*carioca Petuch, 1986 — Proceedings of the Biological Society of Washington 99(1), p.9 (Brasil)
- cebuganus daMotta & Martin, 1982 — Carfel Philippine Shell News 4(3), p.1
- cernohorskyi daMotta, 1983 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 4, p.4
- chusaki daMotta, 1978 — The Centre of Thai Natural Study, suppl., p.8
- ciderrii daMotta, 1985 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 4, p.4
- clandestinus Shikama, 1979 — Science Report Yokosuka City Museum 26, p.2
- clandestinus Shikama, 1979 — Science Report Yokosuka City Museum 26, p.2
- cloveri Walls, 1978 — The Pariah 2, p.2
- colmani Roedel & Korn, 1990 — Acta Conchyliorum 2, p.16
- \*colombianus Petuch, 1987 — New Caribbean Molluscan Faunas, p.114 (Colombia)
- colorovariegatus Kosuge, 1981 — Bulletin Institute of Malacology Tokyo 1(6), p.94
- curralensis Rolan, 1986 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 6, p.10
- dahlakensis daMotta, 1982 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 1, p.5
- damottai Trovao, 1979 — Amphitrite 1, p.8
- dampierensis Filmer & Coomans, 1985 — Beaufortia 35(1), p.4
- danilai Roedel & Korn, 1990 — Acta Conchyliorum 2, p.46
- dayriti Roedel & daMotta, 1983 — Bulletin Institute Malacology Tokyo 1(8), p.118
- decoratus Roedel, Rolan & Monteiro, 1980 — Cone Shells from Cape Verde Islands, p.61
- delanoyi Trovao, 1979 — Amphitrite 1, p.3
- derrubado Rolan & Fernandes in Rolan, 1990 — Iberus, suppl.2, p.19
- diminutus Trovao & Rolan, 1986 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 7, p.10
- dondani Kosuge, 1981 — Bulletin Institute Malacology Tokyo 1(7), p.114
- episcopatus daMotta, 1982 — Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia 1, p.1
- \*espinosai Sarasua, 1977 — Poeyana 165, p.3 (Cuba)
- \*eversoni Petuch, 1987 — New Caribbean Molluscan Faunas p.74 (Honduras)
- \*explorator Vink, 1990 — La Conchiglia 22(250-252), p.42 (Jamaica)
- fantasmalis Rolan, 1990 — Iberus, suppl.2, p.37
- felitae Rolan, 1990 — Iberus, suppl.2, p.45
- \*finkli Petuch, 1987 — New Caribbean Molluscan Faunas, p.11 (Venezuela)
- fishoederi Roedel & daMotta, 1983 — Bulletin Institute of Malacology Tokyo 1(8), p.117
- \*flamingo Petuch, 1980 — Proceedings of the Biological Society of Washington 93(2), p.299 (Florida)

flavus Roeckel, 1985 — Spixiana 8(2), p.166  
fontonae Rolan & Trovao in Rolan, 1990 — Iberus, suppl.2, p.28  
fragilissimus Petuch, 1979 — Nemouria 23, p.14  
fulvobullatus daMotta, 1982 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.13  
furnae Rolan, 1990 — Iberus, suppl.2, p.42  
fuscoflavus Roeckel, Rolan & Monteiro, 1980 — Cone Shells from Cape Verde Islands, p.71  
gabelishi daMotta & Ninomiya in daMotta, 1982 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.14  
galao Rolan, 1990 — Iberus, suppl.2, p.36  
ganensis Delsaerd, 1988 — Gloria Maris 27, p.1  
\*garcaiai daMotta, 1982 Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.18 (Honduras)  
gaudiosus Nicolay, 1978 — La Conchiglia 10 (106-107), p.18  
\*gibsonsmithorum Petuch, 1986 — Proceedings of the Biological Society of Washington 99(1), p.9 (Venezuela)  
\*glicksteini Petuch, 1987 — New Caribbean Molluscan Faunas, p.30 (Florida)  
gracianus daMotta & Blocher in daMotta, 1982 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.16  
grahami Roeckel, Von Cosel & Burnay, 1980 — La Conchiglia 12(130-131), p.10  
granum Roeckel & Fischöder, 1985 — Spixiana 8(1), p.67  
halli daMotta, 1983 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 2, p.3  
hamamotoi Yoshida & Koyama, 1984 — Venus 43(2), p.118  
hamanni Fainzilber & Mienis, 1986 — Bulletin of Malacology, Republic of China 12, p.1  
\*harasewychi Petuch, 1987 — New Caribbean Molluscan Faunas, p.31 (Florida)  
\*harlandi Petuch, 1987 — New Caribbean Molluscan Faunas, p.74 (Honduras)  
hereditarius daMotta, 1987 — La Conchiglia 19(218-219), p.27  
\*honkeri Petuch, 1988 — Neogene History of Tropical American Mollusks, p.158 (Venezuela)  
\*hunti Wils & Moolenbeek, 1979 — Bijdragen tot Dierkunde 49(2), p.257 (Barbados)  
\*iansa Petuch, 1979 — Proceedings of the Biological Society of Washington 92(3), p.524 (Brasil)  
iberogermanicus Roeckel, Rolan & Monteiro, 1980 — Cone Shells from Cape Verde Islands, p.75  
ikatt Shikama, 1979 — Science Report Yokosuka City Museum 26, p.4  
ikedai Ninomiya, 1987 — Venus 46(1), p.7  
infinitus Rolan, 1990 — Iberus, suppl.23, p.39  
indicus Roeckel, 1979 — Hawaiian Shell News 27(3), p.11  
josephinae Rolan, 1980 — Bolletino Malacologico 16(3-4), p.80  
jourdani daMotta, 1984 — La Conchiglia 16(178-179), p.24  
kahiko Kohn, 1980 — Journal of Paleontology 54(3), p.536 [fossil]  
\*kalafuti daMotta, 1987 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 9, p.42 (Honduras)  
kanakinus Richard, 1983 — Journal of the Malacological Society of Australia 6(1-2), p.55  
kantanganus daMotta, 1982 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.11  
keatiformis Shikama & Oishi in Shikama, 1977 — Science Reports Yokohama National University 24, p.19  
kerstichi Walls, 1978 — The Pariah 2, p.2  
\*kevani Petuch, 1987 — New Caribbean Molluscan Faunas, p.111 (Venezuela)  
kiicumulus (Azuma, 1982) — Venus 40(4), p.231  
kintoki Coomans & Moolenbeek, 1982 — Bulletin Zoologisch Museum Universiteit van Amsterdam 8(15), p.136  
kintoki "Habe" Kaicher, 1977 — Card Catalogue of World-wide Shells, Pack 13, Conidae III, card 1303  
\*kirkandersi Petuch, 1987 — New Caribbean Molluscan Faunas, p.73 (Mexico)  
\*knudseni Sander, 1982 — The Veliger 24(4), p.319 (Barbados)  
kohni McLean & Nybakken, 1979 — The Veliger 22(2), p.140  
kongensis daMotta, 1984 — La Conchiglia 16(182-183), p.8  
krabiensis daMotta, 1982 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.10  
\*kremerorum Petuch, 1988 — Neogene History of Tropical American Mollusks, p.62 (Barbados)  
\*kulkulan Petuch, 1980 — The Nautilus 94(3), p.117 (Honduras)  
lani Crandall, 1979 — Quarterly Journal of the Taiwan Museum 32(1-2), p.113  
lapulapui daMotta & Martin, 1982 — Carfel Philippine Shell News 4(3), p.4  
leehmani daMotta & Roeckel, 1979 — La Conchiglia 11(122-123), p.17  
\*leekremeri Petuch, 1987 — New Caribbean Molluscan Faunas, p.54 (Bahamas)  
lemuriensis Wils & Delsaerd, 1989 — Gloria Maris 28(6), p.104  
lenavati daMotta & Roeckel in daMotta, 1982 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 1, p.17  
leobrera daMotta & Martin, 1982 — Carfel Philippine Shell News 4(3), p.3  
\*lightbourni Petuch, 1986 — Proceedings of the Biological Society of Washington 99(1), p.16 (Bermuda)  
limpusi Roeckel & Korn, 1990 — Acta Conchyliorum 2, p.14  
\*lindae Petuch, 1987 — New Caribbean Molluscan Faunas, p.55 (Bahamas)  
lineopunctatus "Trovao" Kaicher, 1977 — Card Catalogue of World-wide Shells, Pack 13, Conidae III, card 1295  
lobitensis "Paes da Franca" Kaicher, 1977 — Card Catalogue of World-wide Shells, Pack 13, Conidae III, card 1311  
longilineus Roeckel, Rolan & Monteiro, 1980 — Cone Shells from Cape Verde Islands, p.85

lozeti Richard, 1980 — Les Cahiers du Indo-Pacifique 2(1), p.91  
lucia Moolenbeek, 1986 — Bulletin Zoologische Museum Universiteit van Amsterdam 10(25), p.211  
luquei Rolan & Trovao in Rolan, 1990 — Iberus, suppl. 2, p.50  
luziensis Rolan, Roeckel & Monteiro, 1983 — La Conchiglia 15(174-175), p.17

To be continued in December



Kathi Krattli shows off her COA Trophy in front of her exhibit of "Self-Collected Indo-Pacific Mollusca" at the Greater St. Louis Shell Show.

## OOPS!

The captions to Richard Goldberg's photos of *Partulina* landshells on p.19, in Reg Gage's article, "Hawaiian Landshells Illustrate Evolution," in the June *American Conchologist* were scrambled by the printer. To correct the error, rotate each caption one photo counterclockwise. The caption upper right, beginning "*P. (Partulinella) marmorata*," belongs with the photo upper left. The caption upper left, beginning "*P. (Baldwinia) physa*," belongs with the photo lower left. The caption lower left, beginning "*P. (P.) virgulata*," belongs with the upper right photo. Our apologies, Rich and Reg, and all you landshell aficionados.



Marianne & Joe Lampone with their winning exhibit on Muricidae and their COA Trophy at the Astronaut Trail Shell Show.

## TRADERS BEWARE. . .

Much has been said, and much written on the subject of dishonest shell trades. Warnings have been issued in many publications. But it appears we're still as gullible as ever. In one more effort to warn our ranks of the dangers inherent in trading with someone whose reputation is unverified, we print the following letter from an unhappy Australian collector who was defrauded by a notorious shell swindler. His tale of woe explains how the scam works better than we ever could. Though we do not print the man's name, it is known, and more information is available upon request from any COA official or the Long Island Shell Club.

### To the American Conchologist:

I am writing to you concerning an exchange that I did with a collector-dealer about 12 months ago, and I was wondering if you could help me try and fix up this exchange. I exchanged with a fellow named \_\_\_\_\_ after he wrote to our shell club earlier last year. My first two exchanges were alright, although he never put values on his shells and some of his shells were overrated.

Then he wrote to me offering me a gem *Cypraea leucodon* for \$1200 exchange and I sent him a list of shells I had and he picked out some beautiful *Pecten australis*, a *Cypraea nordica*, a *Cypraea exmouthensis*, a dark *Cypraea thersites* and a large *Cypraea thersites*, 2 gem *Cypraea mus donmoorei*. . . 1 large *Cypraea stercoraria*, 1 *Cypraea tessellata*, 1 *Murex bojadorensis*, and a *Cypraea achatidea inopinata*. All these shells added up to around \$1200. I sent the parcel airmail to him.

Then I waited about three months to get the shell that he promised to send to me, but I heard nothing from him, so I wrote to him again, but still did not hear anything from him. Then I wrote to my friend Ed Schelling in Florida who told me that this fellow is a bad person to swap shells with. . . I cannot afford to buy many shells and this exchange wiped me out of good exchange shells for a while. I have told a lot of my friends around Australia about \_\_\_\_\_ and apparently he has cheated a few other Australian collectors. We all do good exchanging and can't understand how a collector like \_\_\_\_\_ can keep doing this. I heard that he has done this a lot in the past to many collectors, promising them rare shells and then not completing the exchange. . . Is there anything I could do to get my shells back?"

John B. Phillips, Adelaide, South Australia

The only way we knew to help Mr. Phillips was to write to Mr. \_\_\_\_\_, asking him to make good his trade. This we did, without response. When Mr. Phillips had heard nothing more six months later, he gave us permission to publish his letter to warn other potential victims. Don't be another victim of \_\_\_\_\_.

## NOTHING NEW UNDER THE SUN

It seems that shell confidence men are nothing new. Walter Sage, Invertebrate Collections Manager and Scientific Assistant at the American Museum of Natural History, was searching for the original description of *Scaphella gouldiana* (Dall, 1887) in an old publication, *The Conchologists' Exchange*, predecessor of *The Nautilus*, when he happened upon the following piece [2(1): 10]:

### BLACKLIST THEM

Sir: — Blacklist whom? Why a lot of conchological frauds who get honest collectors by fair promises and tempting offers, to send them shells and then perhaps never even acknowledge their receipt, to say nothing of making any return. It is not any particular grievance that causes me to write this, but a number.

I have today perhaps 1000 species due from those who have made the fairest promises, not a shell of which I ever expect to receive, and my experience is that of many others. I believe in calling things by their right names, and I say that anyone who induces a conchologist to send shells, and then deliberately makes no return, whatever, is no better than a thief. Persons so inclined have a great advantage, as the innocent sender is generally far away and cannot inflict personal chastisement, and the law will hardly take hold of such a case. This swindling business is on the increase. . . I have received lists of the black sheep . . . and a request to send the list along the line. This is our only protection . . . publish him far and near and stop his disreputable business. . . Of course there may be cases when an honest person is unavoidably delayed in making a return exchange, but I think that in such cases an explanation can generally be given. Anyone who has time to correspond with you, to reply every time by return mail until he gets your shells, can certainly get time to drop a card and acknowledge your sending. . .

Some of my correspondents who have been taken in do not like to say anything about it for fear that these swindlers will retaliate on them. There need be no fear on this score. A person who swindles one will swindle all, and can have but little influence. A person who deals honorably in his exchanges can always refer to his correspondents when writing to a stranger.

Do not be in a hurry to denounce anyone as a fraud. Give a correspondent plenty of time, give him the benefit of every doubt. And if after repeated dunnings you can get no reply, pass his name around, and warn your fellow exchanges to beware of him and ask [them] to pass it around. It is time such stealing was stopped and these rascals were set aside by themselves; apart from those who are prompt and honest, where they can swindle each other to their hearts content.

Somewhat Indignantly Yours,  
Charles T[orrey] Simpson

## 1990 FALL SHELL SHOWS

(We regret that this list did not appear in the June *American Conchologist*, complete with the Summer Shell Shows.)

- |            |   |
|------------|---|
| Sept. 8-16 | <b>Oregon Shell Show</b> , Portland, Oregon<br>Dr. Byron Travis, 4324 NE 47th Ave.<br>Portland, OR 97218..... (503) 284-1365                              |
| Oct. 5-7   | <b>Annual German Shell Fair</b> , Wolfsburg, W. Germany<br>Horst Fischöder, Koenigs Strasse, 41<br>7000 Stutgard, W. Germany..... (0711) 294-140          |
| Oct. 6-7   | <b>Gulf Coast Shell Show</b> , Panama City, FL<br>Bob Granda, 925 Rosemont Drive<br>Panama City, FL 32405..... (904) 769-2876                             |
| Oct. 19-21 | <b>North Carolina Shell Show</b> , Wilmington, NC<br>Dean Weber, 510 Baytree Road<br>Wilmington, NC 28403..... (919) 799-3125                             |
| Oct. 27    | <b>British National Shell Show</b> , London, England<br>Kevin Brown, 12 Grainger Road<br>Isleworth, Middlesex TW & 6 PQ, England..... (1) 568-8333        |
| Nov. 10-11 | <b>Philadelphia Shell Show</b> , Philadelphia, PA<br>Al Schilling, 419 Linden Ave..... (215) 886-5807<br>Glenside, PA 19038 (or 1-800-274-8530 toll free) |

— Don Dan, COA Trophy Chairman

### Correction — *Scaphella junonia johnstoneae* Clench, 1953

A small correction should be made in the note on the Alabama State Shell (*American Conchologist*, June 1990, p.16). The spelling of the subspecific name should be "johnstoneae," the feminine ending to reflect the naming of this variant for Kathleen Yerger Johnstone. Do not be confused by the etymologically similar *Melongena corona johnstonei* Clench and Turner, 1956, which was named for Harry Inge Johnstone, the "other half" of the malacological duo.

## CONTEMPORARY CONCHOLOGY

by Walter Sage

American Museum of Natural History

This account will focus on recent publications and new species that I find of interest — I hope they will interest some of you readers as well. First the South African *Strandloper* 226, received late May 1990, contains an eight-page "abridged version" of Roland Houart's revision of South African Trophoninae (Muricidae), with four pages of excellent illustrations of shells and nuclear whorls. *Strandloper* 227, received July 2, 1990, contains a 12-page article entitled "Some Muricidae from Southern Africa" by Victor Millard. Discussed and figured in black and white and in color are species of the general *Aspella*, *Chicoreus* s.s., *Chicoreus* (*Naquetia*), *Dermomurex* (*Takia*), *Favartia* s.s., *Favartia* (*Murexiella*), *Murex*, *Murexsul*, *Pterynotus*, *Haustellum*, *Pygmaepterys*, *Pteropurpura* (*Poropteron*), and *Marchia*.

Recent numbers of *The Nautilus* included the following papers: Volume 103 (4), April 1990 — Emily Vokes described two new species of Muricidae from Brazil — *Chicoreus* (*Siratus*) *carolynae*, distinguished from *Haustellum chrysostoma* (Sowerby, 1834) and *C. (S.) coltrorum*, separated from *C. (S.) consuela* (A.H. Verrill, 1950). Also in that number of *The Nautilus*, Emerson and Sage reported the results of their reevaluation of the type specimens of *Distorsio ridens* (Reeve, 1844). They observed that the lectotype and two paralectotypes from the British Museum are specimens of *D. clathrata* (Lamarck, 1816) and that the remaining BM (NH) paralectotype and one at the Museum of Comparative Zoology, Harvard University are referable to *D. decussata* (Valenciennes, 1832). Their conclusion — *D. ridens* is a junior synonym of *D. clathrata* and the correct locality is not the Philippines but Key West, Florida.

*The Nautilus* also published its first supplement in early 1990: "Catalogue of the superfamily Cancellarioidea Forbes and Hanley, 1851 (Gastropoda: Prosobranchia). This paper covers 69 pages, and will surely constitute an invaluable reference to this group of marine mollusks. I quote the abstract: "This catalogue of cancellarioidean taxa is composed of three sections. The first lists alphabetically 124 genus-group taxa originally proposed or later included in the superfamily. The second section lists alphabetically over 1,800 species-group taxa erected in or subsequently referred to genera now considered to belong in Cancellarioidea. The third section consists of a bibliography of works on the systematics of cancellarioideans referred to in this paper."

In *The Nautilus* 104(1), June, 1990, Emerson and Sage described a new species of *Latirus* (Fascioliariidae) from tangle nets set in moderately deep water, off Bogo, NE Cebu, Philippines, May, 1981. Named *Latirus deynzerorum*, this new species honors Bev and Al Deynzer, who in addition to operating Showcase Shells on Sanibel, have been most generous with specimens to many researchers through the years.

Now — to the Conidae. In the January-March 1990 number of *La Conchiglia*, Vink published part 13 of his "The Conidae of the Western Atlantic." He described as new *Conus explorator*, 15-20mm, white ground color with black-brown blotches, a white mid-body band, and widely spaced beaded threads. This new species is known at present only from the north coast of Jamaica — type locality, Discovery Bay.

In *Acta Conchylorum* 2, published May 1990, Roeckel and Korn described three new cones from Queensland, Australia, and two from the western Indian Ocean. The Australian species are *Conus albellus*, compared to *C. lizardensis* Crosse, 1865; *C. limpusi*, distinguished from *C. minnamurra* (Garrard, 1961), and *C. colmani*, differentiated from *C. sydneyensis* Sowerby III, 1887 (syn. *C. illawarra* (Garrard, 1961)). The Indian Ocean species are *C. primus*, compared to *C. milneedwardsi* Jousseaume, 1894 and *C. amadis* form *arbornatalis* daMotta, 1978; and *C. danilai*, similar to the Japanese *C. hamamotoi* Yoshida & Koyama, 1984.

## BOARDTALK. . .

From our COA Treasurer WALTER SAGE: You're right! It's September and time to pay 1991 COA membership dues! I know you haven't even received your last 1990 issue of *American Conchologist* yet, but we have to begin the renewal process now in order to get our 1991 renewals in before time to mail the March 1991 issue. So please send in your check with the gold renewal form just as soon as you can. Remember, there will be no March issue mailed to you until we receive your 1991 dues. As of this writing, we still have 145 memberships for 1990 that remain unpaid, representing 145 March 1990 issues that were mailed to members who aren't interested in renewing for 1990. We can't afford these unappreciated magazines any longer.

With luck you will receive an up-to-date roster of COA members with this issue. Note that the cover page lists the name, address and phone numbers of COA officers and committee chairpersons. If you have suggestions, compliments or (heaven forbid!) complaints, please contact the appropriate person. WE'LL never know how you feel unless YOU let us know!

I do appreciate the many of you who send in your dues immediately. It's a pleasure to work for you, and I thank you for your interest in COA. Twenty-five of you have sent in your dues for 1991. If you've received a postcard from me telling you that you've already paid for 1991, please **DO NOT** send another check. It's not that I do not like money (treasurers feed on cash!), but I like to keep accounts as current as possible, while spending as little extra time with the computer as possible. Bobbie Houchin and I thank you!

## CORINNE EDWARDS AWARD WINNER

Phillip Cramer, age 8, of Atlanta was the fourth recipient of the Corinne E. Edwards National Award at the Georgia Shell Show in Atlanta last April. Congratulations, Phillip! The Corinne Edwards Award is sponsored by the Miami Shell Club.

## COA GRANT AWARDS FOR 1990

Jacksonville Shell Club's planned publication, *An Illustrated and Annotated Checklist of Recent Northeast Florida Marine Mollusks*, received a grant of \$1000 from COA this year. The Jacksonville Shell Club will provide approximately \$5000 of their own funds toward the project, headed by Dr. Harry Lee, and will be repaying the COA grant money from half of any profits they realize on the sale of the publication.

Other recipients of COA Grants were:

Lindsey T. Groves, a curatorial assistant in malacology at the Los Angeles County Museum of Natural History, \$400.00 for photographic supplies and museum travel in connection with his studies on the "Paleontology and Biostratigraphy of Fossil and Recent Cypraeaaceans of the Eastern Pacific."

William S. Arnold, a Ph.D. student at the University of South Florida, \$400.00 for chemical supplies in connection with his "Biochemical Studies of *Argopecten gibbus* in relation to the Biochemistry of Offshore Water Nutrients."

Jay Schneider, a Ph.D. student at the University of Chicago, \$600.00 in connection with his study of "The Evolutionary Significance of Homoplasy in Cardiid Bivalves."

Ronald W. Gilmer, a Research Specialist at the Harbor Branch Oceanographic Institution, \$600.00 to pay for the publication of very unusual color photographs of a new species of pelagic, deepsea pteropod.

COA grants are made possible by the COA Auction held at the annual convention. Donations for the 1991 Auction, to be held next July in Long Island, New York are already being accepted by the Auction Chairman, Sol Weiss, 2562 Ramona Street, East Meadow, New York, 11554. Members are asked to donate specimen shells, books, literature and shell-related items.





photo by Bob Walters

**Opening Ceremonies with the Patrick Air Force Base Color Guard**



photo by Bob Walters

**The COA Club Rep Meeting: how many people do you recognize?**



photo by Bob Walters

**Your 1989-90 COA Board of Directors and Committee Chairmen: From left: Richard Goldberg, Publications; Tucker Abbott, Grants; Hank Foglino, Vice-President; Lynn Scheu, Editor; Don Dan, Trophies; Peggy Williams, President; Glen Deuel, Parliamentarian; Dave Green, Secretary; Al Chadwick, Finances; Lucy Clampit, Historian; Bev Deynzer, Trustee, and Herb Young, Trustee. Walter Sage, Treasurer, is off the picture to the left.**



photo by Bob Walters

**The Get-Acquainted Party on the Oceanfront lawn**

## COUNTDOWN COA 1990 RECOUNT

by *Mattie Chanley*

We never expected Sunday afternoon's early registration in the main lobby of the Holiday Inn Oceanfront to be so busy. Many attendees checked in early, started visiting with each other, buying their raffle tickets for the beautiful *Cypraea aurantium* donated by **John Baker** and the stunning *Cottonia nodiplicata* donated by **Donald Dan**, and selecting their new Countdown COA 1990 T-shirts. **Sue Stephens** of Sanibel had designed a special T-shirt for the convention featuring both the COA and Astronaut Trail Shell Club (ATSC) shells.

Monday morning registration continued apace. The doors to the Grand Caribbean Ballroom finally opened at 1:15 to instant interest in the silent auction. The Patrick Air Force Base Color Guard officially opened the meeting. Following the welcoming and introductory speeches by **Doris Underwood**, ATSC president and convention co-chair, **John Baker**, convention co-chair, and **Peggy Williams**, COA president, drawings were held for the first of many door prizes, to be awarded before, after, and in between programs, at breaks, and at every available opportunity through the annual business meeting, thanks to the great generosity of many contributors.

Officially registered for the 18th Annual COA Convention were 301 persons from over half of the states and eight foreign

countries. We were especially pleased to welcome **Alain Allary** (France), **Jose and Marcus Coltro** and **Dr. Eliezer Rios** (Brazil), **S. Peter Dance** and **Noel Gregory** (England), **Gerti and Harald Doute** (West Germany), **James Ernest** (Panama), **Shinjiro Fujimoto** and **Yasuo Koyama** (Japan), **Alain Gaspard** (Luxembourg), and **John Lightbourn** (Bermuda).

**Dr. R. Tucker Abbott**, dean of American conchology, presented the lead-off paper, a review of US conchological centers. **Richard Goldberg** followed with a sequel to the paper he gave in Fort Myers — striking photography of spectacular shell sculpture and opercular dentition.

The weather couldn't have been more perfect for the Welcome Party on the oceanfront lawn and under the tent — a nice breeze off the ocean and enough cloud cover for comfort. A few games and mixers assured everyone met almost everyone else.

Tuesday and Wednesday morning activities started with heavy sales and socializing at the COA and club tables. Among the club pins, T-shirts, coffee mugs, and more offered, Georgia's new pin was the hot item for the pin collectors.

Tuesday morning's programs got off to a perfect start with **Joan Caldwell's** riotous account of her 12-day adventure collecting on Australia's Great Barrier Reef. Next we heard Bea



photo by Allan Walker

Convention Co-chairs, John Baker and Doris Underwood. Doris is the new COA Trustee, and John heads the 1991 Nominating Committee.

Winner's very interesting and informative presentation on apple snails, their egg masses, and hatching juveniles, followed by Dr. Emily Vokes' marvelous presentation of trophon collecting from the beaches of Argentina. Now, I'd really love a field trip to Argentina!

After lunch we reassembled for presentations by former COA president Dick Forbush on Micronesian shelling and current president Peggy Williams for a pot pourri of shelling adventures. Due to the generosity of many friends of COA, there was an abundance of shells and books for the silent auction tables. To the benefit of the COA grants and scholarship fund, an enthusiastic contingent of die-hards stayed at the silent auction tables each afternoon, bidding each other up and up until closing time late each afternoon.

Tuesday evening's adventure took 78 of us to Kissimmee and back in time, to the Medieval Times — no shells, but a jolly good time and some superb horsemanship. The food wasn't bad either. Incidentally, our knight, the Black-and-White Knight, was the victor and champion of the castle. Guess we were rowdy enough and cheered loudly enough.

Wednesday morning, bright and early, a group of 14 divers led by dive-master Jim Cordy departed for adventures aboard the "Paradise Diver" about 1/2 mile out into the Atlantic off Lake Worth Inlet. The two tank dive took them to a site known as The Rock Pile and to another nearby reef. Jim found a gold color form of the Atlantic Triton Trumpet. Other finds of note included Atlantic Yellow, gray and deer cowries, other tritons, and Latirus.

The morning's programs for those who stayed ashore were initiated by Bob Lipe's thoughtful presentation of "his" marginellas. Dr. E. C. Rios next showed us the extensive color and morphological variations present in some Brazilian prosobranchs. Dr. Bruce Crystal concluded the morning's session with his account of Caribbean collecting from a live-aboard sailboat.

Wednesday afternoon's programs were presented by Kevan Sunderland on Caribbean collecting habitats and James Ernest on dredging off Panama. The silent auction ended at 5 pm and the ballroom reopened at 6:30 for a preview of the shells for the evening auction an hour later.

Wednesday evening Marty Gill conducted his usual fast paced and highly successful shell auction. Those who have never attended a Marty Gill auction owe themselves the treat. Whew! All 100 available tickets to a special raffle were sold and Clara Shiflett of Alabama was the lucky winner of a *Conus milneedwardsi*. The auction and closed raffle netted a record \$5,018 and \$500 respectively for the COA scholarship fund. By Thursday morning the silent auction results were tabulated, adding another \$1795 to the grants program, and the goodies were packaged for their new owners.



photo by Bob Walters

Marcus Coltro puts the finishing touches on his "Femorale" booth before the Bourse begins.

Both morning programs featured video presentations. Accompanied by much trial and tribulation with the hotel's audio system, Don Pisor presented terrestrial and marine collecting in two new areas of Madagascar, Ile St. Marie and Ft. Dauphin. The final program before the annual meeting was a teaser and advertisement presented by Walter Sage and Lynn Nathanson of the Long Island Shell Club about all the great things they have planned for us next year. If you saw the program, you know you don't want to miss the COA Convention 1991 — Long Island.

The Annual Business Meeting followed. The 1990 scholarship and grants winners were announced. Current membership of 1150 was announced. Jacksonville was selected as the site for the 1992 convention to be held during the last week of July, the week before the AMU annual meeting in Sarasota. The 1990-1991 officers to serve through the meeting on Long Island next year



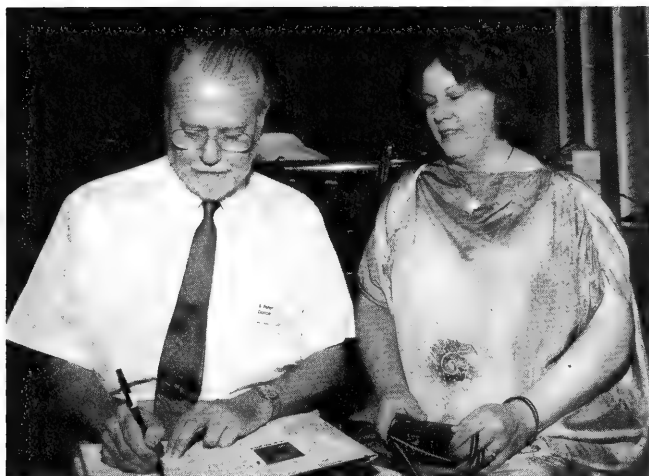
photos by Allan Walker

Outgoing President Peggy Williams and incoming President Hank Foglino:

Above: In the full seriousness of their office.

Below: In a much more "candid" mood. Hank's the one taking the picture of the guy taking the picture.





photos by Allan Walker

**S. Peter Dance, British malacologist and COA Banquet speaker, autographing Sharon Snyder's copy of his book, A Collector's Encyclopedia of Shells.**

were introduced: president, **Hank Foglino**; vice president, **Glen Deuel**; treasurer, **Walter Sage**; secretary, **Barbara Elliott**, and new board member, **Doris Underwood**. As a fitting conclusion to the business meeting, the drawing was held for the two raffle shells. Congratulations to **Bill Clendenin** of Sarasota, winner of the *Cypraea aurantium*, and **Phyllis Grimm** of Amery, Wisconsin, winner of the *Cottonia nodiplicata*.

If you didn't find and secure that dream shell during the auctions, you were sure to find it at the Bourse. Thirty-three dealers displayed a wide and ample selection of specimen fresh water, marine, and land shells. There were exquisitely made wood carvings that looked like the real shell, shirts with shell appliques, paintings, books, and more. It would be an understatement to say that the Bourse was well attended. On Thursday evening right up to closing, and again on Friday, business was brisk. One of the Bourse participants, Grace Miller's Family Island Vacations, held a raffle for a trip to Eleuthera, won by **Horatio Buck** of Lilburn, Georgia.

Countdown COA 1990 concluded with a banquet in the Grand Caribbean Ballroom. The Space Coast Sweet Adelines entertained us with some patriotic and old fashioned tunes in close harmony. **S. Peter Dance** of Manchester, England, came across to attend our convention and served as the banquet speaker. His talk, entitled "To Find a Foreign Lady" featured the conchology of Oman and Masirah Island. His own interest in Oman came from studying the Oman shells sent to the British Museum by cable ship commander Frederick Townsend. As a treat and great surprise, he shared the microphone with **Donald Bosch**, his host on the excursion to Oman and Masirah Island, and with **R. Tucker Abbott** who described and named the beautiful *Acteon eloisae* for the "foreign lady," **Eloise Bosch**.

Because the program booklet had to go to the printer a few days before the convention, regrettably, the names of the donors of late arriving goodies for the auctions and door prizes could not be included. Therefore, the Astronaut Trail Shell Club and COA would like to take this opportunity to extend grateful thanks to all the donors whose contributions helped make Countdown COA 1990 a great convention:

01. Dr. R. Tucker Abbott, American Malacologists, Melbourne FL
02. Frank & Ruth Abramson, Sea'n Earth Treasures, Jacksonville, FL
03. Anonymous
04. John A. Baker, Satellite Beach, FL
05. John Bernard, Shelloak, Crossville, TN
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69. Fred & Irene Leonard, Hollywood, FL
70. Harald & Gerti Doute, West Germany
71. Donald Bosch, Lake Wylie, SC
72. Fran Wright, Cape Coral



photo by Bob Walters

**Giving you smile of welcome are three Long Island Shell Club members: From left, Lynn Nathanson, Arlyne Lieb, and Deena Martin. Come meet them in 1991.**

## REVIEWS:

*The Superfamily Strombacea from Western Atlantic* by Renato Moscatelli. 1987. Published by the author in English and Portuguese editions. 132pp., 38 pages color photographs, no price indicated.

I have unintentionally overlooked reviewing this 6 x 8 inch, softcover book and want to call it to the attention of all collectors interested in the marine mollusks of the western Atlantic. The author has made this group of mollusks his particular study, and has shared with us his voluminous notes on the several species of Strombidae and the single member of the Aporrhaidae. The color photographs illustrate the variation within a species that is discussed in the text. Ecological and life history information is presented, and an extensive bibliography supplements the species treatments.

The author is to be commended for giving us this in-depth look at these snails which we all notice but usually fail to remark upon. This work is a good example of the type of contribution that can be made by an individual conchologist willing to undertake the cost of such a project. This is most definitely a book from which many of us can learn, especially in that it incorporates such a wealth of data about the Strombacea. You will enjoy it. — Walter Sage

*Monograph of Living Chitons (Mollusca: Polyplacophora) Volume 4. Suborder Ischnochitonina: Ischnochitonidae (continued). Additions to vols. 1, 2 and 3* by Piet Kaas and Richard A. Van Belle. 1990. E. J. Brill, Leiden. 298 pp., 117 black and white figs., 48 maps. Hardcover — \$47.50.

This 4th volume of a planned 10 volume revision of the Polyplacophora follows the same format as the preceding volumes. In addition to the scientific name, author and date, type and type locality are provided, followed by a detailed description, clearly delineated figures, distribution and observations.

Additions to volumes 1, 2 and 3 cover 17pp., 7pp. and 25pp., respectively, and include information on recently described or documented species. In these addenda, the following species are described as new to science: *Leptochiton* (L.) *xanthus*, Gibraltar Straits; *L.* (L.) *amsterdamensis*, Amsterdam Island, southern Indian Ocean; *L.* (Parachiton) *indecus*, South Africa; *Callochiton herberti*, South Africa; *C. neocaledonicus*, New Caledonia; *Chaetopleura* (C.) *natalensis*, South Africa; *Lepidozona* (L.) *tenuicostata*, West Mexico; *L.* (L.) *sirenko*, West Mexico.

The bulk of this volume is comprised of nearly 200 pages which treat in detail additional species of the genus *Ischnochiton* Gray, 1847: one species of the subgenus *Ischnoradsia* Shuttleworth — *I. australis*; eight species of the subgenus *Stenosemus* von Middendorff, including the new species *substriatus*, Cape Verde Is.; and 78 species and one subspecies of *Ischnochiton*, s.s., of which these are new: *nicklesi*, Cape Verde Is., *bigranosus*, South Andaman Island; *baliensis*, Bali, Indonesia; *chaceorum*, West Mexico. The authors also list two species as having unknown habitat, 3 as doubtful names, two as of uncertain status. The new genus *Leloupia* is created for the species *Leptochiton belgicae* Pelseneer, which is said to have an assemblage of characters that cannot be placed within an existing genus.

Completing this volume are 16 pages of references, 18 pages of locality maps, a 7 page index, and a statement that Volume 5 will conclude *Ischnochitonidae*, and proceed to *Callistoplacinae* and *Mopaliidae*. This series is certain to be invaluable to anyone interested in chitons, and readers are urged to obtain copies and make use of the information therein. We look forward to the remaining volumes.

— Walter Sage

## COA 1991 — The GOOD LIFE on Long Island

COME ONE, COME ALL! Join us July 8-12, 1991 for the 20th annual convention of the Conchologists of America. The Long Island Shell Club will be your host; we invite you to join us at the Huntington Hilton (formerly the Royce Carlin Hotel), Broad Hollow Road, on Route 110 (Walt Whitman Parkway), just south of I-495, our justly famous Long Island Expressway. Situated just inside the western boundary of Suffolk County, this central location is accessible to all parts of Long Island, and a short ride on the Long Island Railroad will take you to mid-town Manhattan, where you can experience the metropolitan merry-go-round.

But we want to share with you a quieter, more relaxed way of living, and you will take back with you pleasant memories of a New York you never dreamed existed. In addition to the tried-and-true schedule of slide talks, auctions and raffles, Dealers' Bourse and Banquet, we are planning a trip out to Orient Point on the northeastern tip of Long Island; a visit to one of our premier wineries; and a boat trip on Long Island Sound, with complementary dredging for those interested.

We will be tempting you with further details as the event draws nearer, but we suggest that you reserve the week of July 7, 1991 for your personal experience with shelling on Long Island. Suggestions are welcome — contact me, P.O. Box 8105, Saddle Brook, NJ 07662. Phone 1-201-340-3437.

Walter E. Sage III, 1991 Convention Chairman

(Cont. from page 13)

Corinne Edwards in Florida, George Ballentine from the Seychelles, and Gerrie Leslie from Bimini. (My apologies for omitting the many Hawaii members who also contributed articles, but who may be less well remembered "off the island.")

From the early 1960s into the mid-1970s, HSN and, in fact the entire Hawaiian Malacological Society enjoyed active technical and (frequently) financial support from Cliff Weaver and Mrs. Mariel King. Weaver wrote and published *Hawaiian Marine Mollusks*, a series of four-to-six page separates, distributed with HSN. Mrs. King organized and subsidized far-reaching research and collecting expeditions aboard her yacht.

My walk down memory lane in the back issues produced one big surprise — to me, at least. Imagine my reaction to the discovery that at least twice before my day HSN had published new species descriptions, including *Homalocantha anatomica zamboi* John Q. and Rose Burch, 1960 — parents of my successor as editor. There is no record that anyone ever said a word about it, let alone resign!

I believe I correctly represent the feelings of all the editors of *Hawaiian Shell News* in its first 40 years when I say that is is a demanding and frequently exhilarating job. I suspect that no one really loves us. But we do get occasional intimations of respect, such as Dr. Alison Kay's tribute in her great *Hawaiian Marine Shells*:

"One of the most potent forces in the accumulation of information on Hawaiian marine mollusks in this century has been the Hawaiian Malacological Society. . . [which] since 1952 has published a monthly bulletin that includes news not only of Hawaiian shells, but also of mollusks from all over the world."

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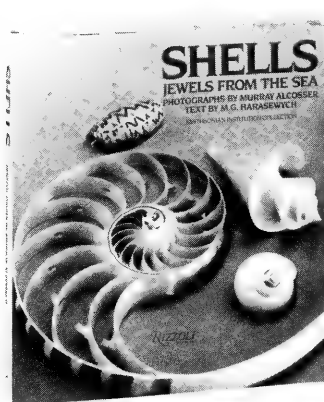
M.G. Harasewych.

Photographs by

Murray Alcosser.

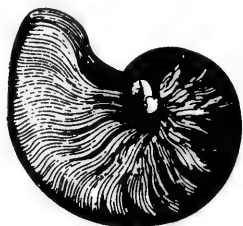
Introduction by

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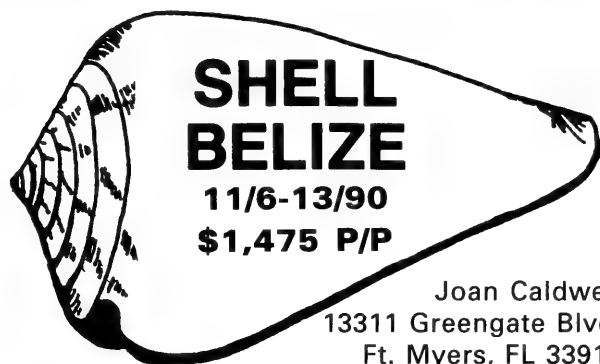
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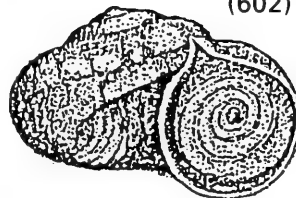
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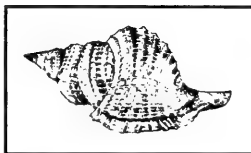
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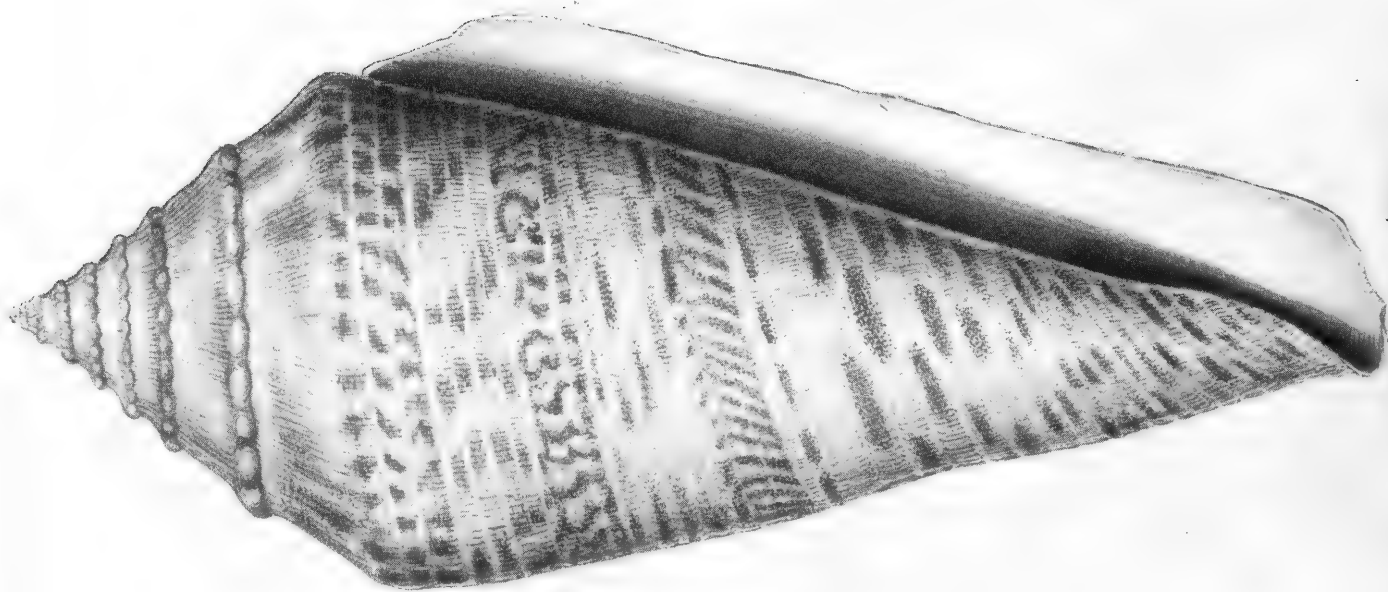
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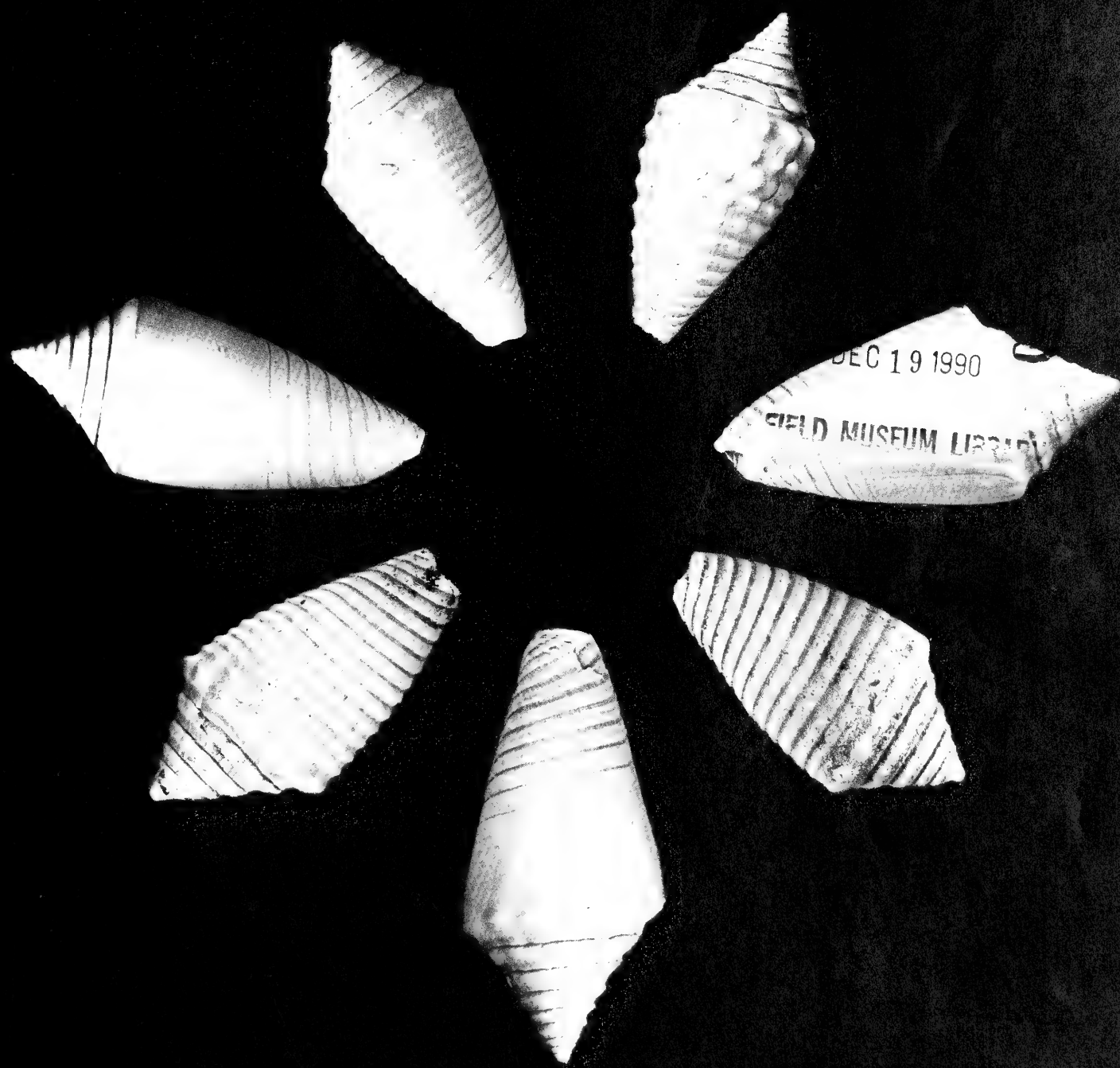
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 18, NO. 4

DECEMBER, 1990



# CONCHOLOGISTS OF AMERICA, INC.

## A Collective Devotion To Advancing- Conchology.

In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. Our membership includes novices as well as advanced collectors, scientists and shell dealers from around the country and the world.

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**COVER:** Dr. Emily H. Vokes sent us these photos of seven fossil cones from the Pinecrest Beds in Collier County, Florida. They were all found at site TU 797, 13.3 miles east of Florida Highway 29, in material exposed during construction of "Alligator Alley." All have been whitened, and are magnified X 3. And all are probably forms of the highly variable *Conus jaspideus* Gmelin, 1791.

## DON'T MISS THE MARCH ISSUE!

Your subscription ends with this issue. Renew now, because you'll not want to miss our big, beautiful March *American Conchologist* or any of Long Island convention news.

In the September issue of *American Conchologist* was your 1991 COA membership renewal form. Complete it now, and return it to Walter Sage, along with your 1991 COA dues. \$12.50 individual, \$15.00 family, club or organization, \$20.00 within the Americas (Air Mail), and \$25.00 overseas (Air Mail).

## PRESIDENT'S MESSAGE

Due to an inadvertent deviation from the COA By-Laws, the process which was used to select the site of the 1992 COA Convention was determined to be invalid. The host club and corresponding site of the 1992 COA Convention will be determined when the Executive Board meets in mid-January 1991. Any club(s) wishing to host the 1992 COA Convention should contact me and I'll send them a form to fill out and return to me. This form will be used as part of the selection process. Obviously, the form must reach me no later than the first week in January.

The Long Island Shell Club is busily preparing for the 1991 Convention which will be held at the Huntington Hilton on Long Island, New York, July 7-14, 1991. It promises to be a super convention. If you would like to participate by giving a talk, lecture, presentation, etc., get in touch with me as soon as possible, giving me the title and a brief description of what you wish to present.

Do have a wonderful Holiday Season and enjoy good health in the upcoming year.

HANK FOGLINO

## NOTES ON CONUS JASPIDEUS GMELIN, 1791

by Walter Sage

American Museum of Natural History

Clench (1942, *Johnsonia*, vol. 1, No.6) designated a representative of the lectotype of *Conus jaspideus* Gmelin, 1791 and carefully redescribed the species. Clench's concept of the species was accepted by Abbott (1958, *Marine Mollusks of Grand Cayman Island*) and Kohn (1966, *Type Specimens . . . of Conus III*). Clench, however, also considered *Conus stearnsii* Conrad, 1869 and *C. verrucosus* Hwass, 1792 valid, distinct species. Abbott (1958) considered *C. verrucosus* to be the pustuled form of *C. jaspideus*, but gave *C. stearnsii* subspecific status under *jaspideus*, stating that *stearnsii* was localized along the west coast of Florida. Kohn (1968, *Type Specimens . . . of Conus IV*) cited Abbott (1958) in concluding that *C. verrucosus* is a junior synonym of *C. jaspideus*. In their paper on shallow water marine Mollusca of the Yucatan Peninsula, Vokes & Vokes (1983) illustrate three of the specimens here figured as *C. jaspideus* (pl. 20, fig. 4), *C. jaspideus stearnsii* (pl. 20, fig. 5), and *C. jaspideus verrucosus* (pl. 20, fig. 6). In their 1982 *Compendium of seashells*, Abbott & Dance (p.270) illustrate in color three specimens — *C. jaspideus* ("highly variable"), a "relatively narrow and elongate variety, known as *stearnsii* Conrad, occurs in Florida," and "this pustuled form is common in Caribbean. Form *verrucosus* Hwass."

Now that Vokes (herein) illustrates the specimens from Vokes & Vokes (1983) with other specimens from the same locality showing variation of a single population, we can logically proceed to the conclusion that there is indeed one highly variable species here represented, which should take the name *jaspideus* Gmelin, 1791, with *verrucosus* Hwass, 1792 and *stearnsii* Conrad, 1869 as junior synonyms. Kohn (1988, *Type Specimens . . . of Conus VIII*) considers *C. pealii* Green, 1830 also to be a synonym of *C. jaspideus*, and this writer further would list *C. piraticus* Clench (1942, *Johnsonia*, p.14) under the synonym of *C. jaspideus*. Coomans, Mookenbeek & Wils (1985, *Alphabetical Revision . . . 8*) place *branhamae* Clench, 1942 in the *C. mindanus* Hwass, 1792 complex, an assignment with which this writer concurs. Their acceptance of *C. pusillus* Lamarck, 1810 as a valid species, with *C. duvali* Bernardi, 1862 and *C. boubeae* Sowerby, 1903 as synonyms seems incorrect, and this writer would consider these three taxa, along with *C. anaglypticus* Crosse, 1865 to be synonyms of *C. mindanus*.

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW  
SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS

# A CLOSER LOOK AT THE STRUCTURE AND FUNCTION OF THE PROSOBRANCH GILL

by Carolyn H. Declerck

Mollusks have a respiratory organ, the gill, or **ctenidium**, which is structurally unique and characteristic of the phylum Mollusca. The mollusks have undergone a tremendous adaptive radiation, taking advantage of and accommodating themselves to the various ecological niches available to them. As we might expect, considering the extent of this radiation, the molluscan ctenidium takes on different forms in various taxonomic groups and may perform a variety of functions. In addition to its respiratory function, the ctenidium may be a pumping and a feeding organ.<sup>1</sup>

Within the gastropod subclass Prosobranchia, the most common ctenidium is single and **monopectinate** (having filaments on one side of a supporting axis). It is attached to the roof of the mantle cavity, dividing it into an effective left, inhalant, and right, exhalant space. The mollusk thus takes in water on the left side of its head, passes it between the filaments of the ctenidium where exchange of oxygen and carbon dioxide takes place, then expels the water via the right side of the head (see Figure 1). An inhalant current, produced by bands of long waving cilia on the surface of the ctenidial filaments, drives the water through the mantle cavity.

Suspended in the water may be bits of solid matter, or perhaps silt, which may clog the ctenidium and so must be trapped and expelled. We don't completely understand how the mollusk traps these particles and expels them, but we know it involves mucous secreted by glandular cells interspersed between the ciliated cells in the ctenidium. In most bivalves and in some gastropod families this cleansing mechanism of the ctenidium has developed a special function: it has become modified to divert to the mollusk's mouth potential food particles such as phytoplankton present in the inhalant current (Yonge, 1938). These particles are entangled in mucous and trapped on the ctenidium, as illustrated in Figure 2 depicting a bacterium trapped in a mucous net on the ctenidial filament of *Crepidula adunca*. Figure 5 also illustrates this mucous net. Another set of smaller cilia (**frontal cilia**) located on the edges of the filaments guide these particles in

<sup>1</sup> Detailed descriptions of the ctenidium and the mantle cavity (the anteriorly located cavity which houses the ctenidium and various other organs), and their modifications throughout gastropod evolution are found in Yonge (1947), Hyman (1967), or Fretter and Graham (1962).

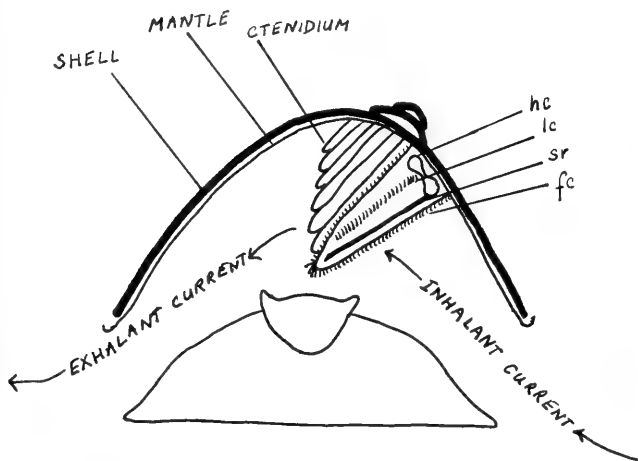


Figure 1 Diagrammatic representation of the ctenidium in the mantle cavity of a generalized prosobranch.

## LIST OF ABBREVIATIONS

hc	hemocoel	lc	lateral cilia
sr	supporting rod	fc	frontal cilia

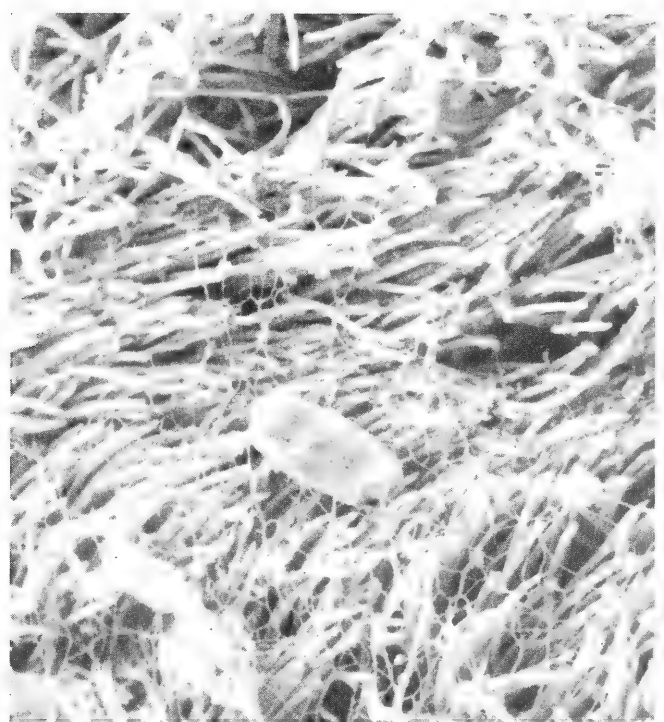


Figure 2 Scanning electron micrograph of the lateral cilia on the ctenidium filament of *Crepidula adunca* X 7500. Bacterium in the center is entangled in mucous threads.

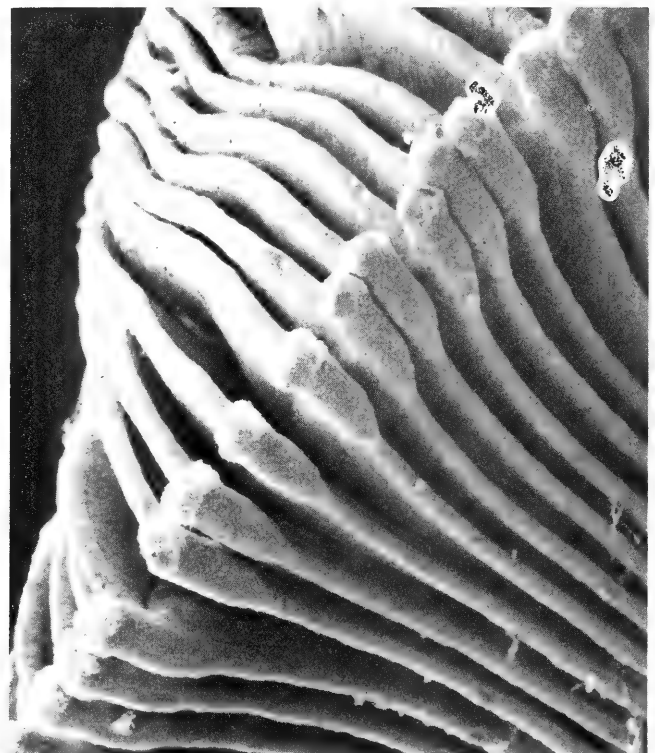


Figure 3 Scanning electron micrograph of the ctenidium of *Nucella emarginata* X 82.

Department of Zoology, University of California, Davis, CA 95616. Carolyn is the recipient of a 1989 COA grant to assist her in her work on the prosobranch ctenidium.



mucous to the tips of the filaments where they are dropped into a ciliated gutter or a food groove. Here the particles are molded with more mucous into a food string, which is led out of the mantle cavity at the right side of the head. When the food-mucous string leaves the mantle cavity, the animal extends its

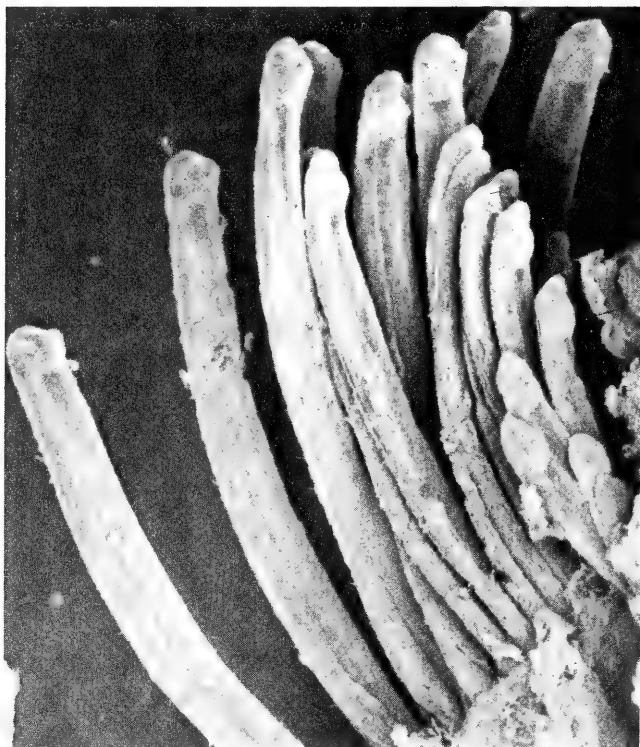


Figure 4. Scanning electron micrograph of the ctenidium of *Lirularia succinctum* X 72.

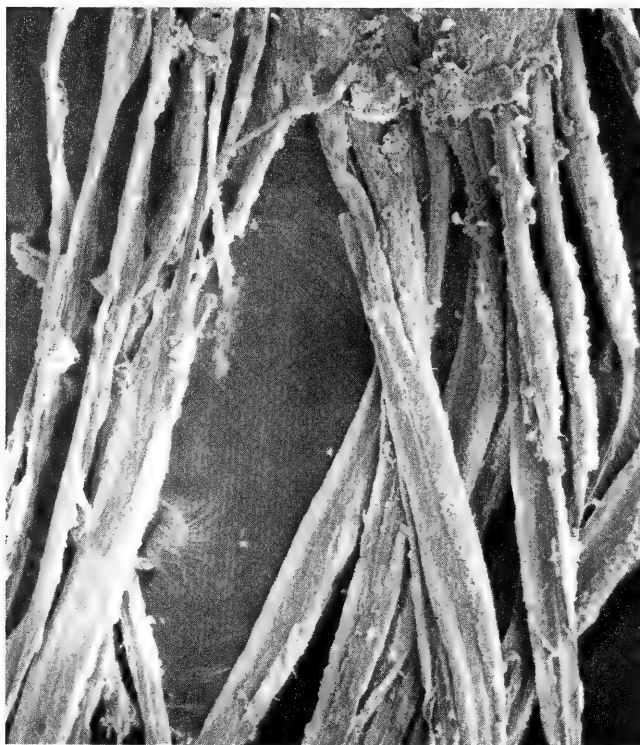


Figure 5. Scanning electron micrograph of the ctenidium of *Crepidula adunca* X 73. Note mucous net in smooth gray area in center.

radula and hauls the food string into the mouth. Edible particles are later sorted from detritus in the stomach.

This type of ctenidial filter feeding has been described or suggested for certain species in the families Neomphalidae, Trochidae, Viviparidae, Turritellidae, Siliquariidae, Bithynidae, Strutholariidae, Calyptraeidae, Capuludae, Trichotropidae and Vermetidae. Without an exact and complete evolutionary history, or **phylogeny**, it is impossible to know how many different times filter feeding has evolved among the prosobranchs. Only some species of each family (excluding Calyptraeidae, Vermetidae and Siliquariidae) have the ability to filter feed, while most species in these families are grazers or detritus feeders, both of which are more primitive feeding modes among the gastropods. Since filter feeding occurs in unrelated species in such diverse groups as the Umboninae (Trochidae) and the Strutholariidae (Strombacea), we can safely assume that a ctenidium capable of filter feeding evolved separately in at least some families. When unrelated species evolve similar structures to deal with similar environments, we call the process **convergent evolution** or simple **convergence**.

Some of the convergences that filter-feeding prosobranchs have developed in their mantle cavities and ctenidia include (1) a **hypertrophied** or overgrown ctenidium, filling the entire length of the mantle cavity, (2) elongated filaments instead of the usual triangular ones, (3) an increased number of secretory cells, either interspersed between ciliated cells, or clustered at the base of the ctenidium, and (4) a ciliated food groove meeting the tips of the ctenidial filaments on the floor or the mantle cavity.

To illustrate some of the differences between a purely respiratory ctenidium and a filter-feeding ctenidium, I used scanning electron microscopy to compare the structure of the ctenidium of three phylogenetically distant species: *Nucella emarginata*, a carnivorous neogastropod which uses its ctenidium solely for respiration, *Crepidula adunca*, a filter-feeding mesogastropod, and *Lirularia succinctum*, an archaeogastropod which both filter-

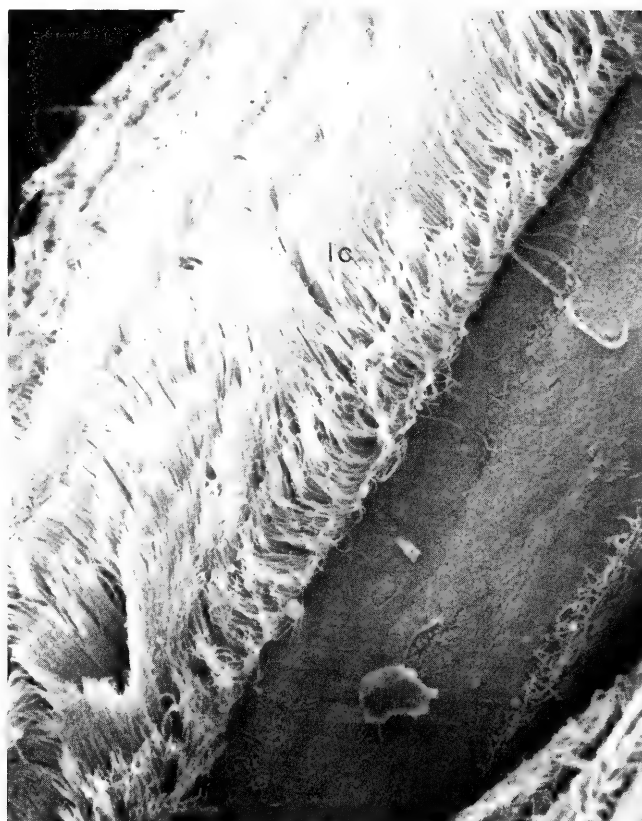


Figure 6. Scanning electron micrograph of a ctenidial filament showing the lateral cilia of *C. adunca* X 857.

feeds and grazes.

*N. emarginata* has triangular filaments, with a ciliated knob at the tip (Figure 3). In contrast, the ctenidia of *L. succinctum* (Figure 4) and *C. adunca* (Figure 5) consist of a series of elongate filaments, which are proportionately longer in *C. adunca*. The two filter feeders, *L. succinctum* and *C. adunca*, both have a ciliated groove running through the middle of the filament, a result of lateral folding of the filament. All three species have terminal cilia covering the tips of the filaments (Figures 3 and 4), but the filter feeders have longer and more numerous lateral cilia on the sides of the filaments (Figure 6). So it is clear that there has been some convergent evolution in the structure of the ctenidium of filter feeders.

In conclusion, the molluscan gill which originated solely as a respiratory organ was well suited to take on the function of food gathering. This additional function of the gill arose more than once throughout the course of prosobranch evolution, and each time it was accompanied with similar changes in structure, a phenomenon we call convergence.

In another study I assessed the physiological consequences of different ctenidial morphologies, and concluded that standard

respiratory rates do not differ significantly among the three different species mentioned here, despite the morphological and functional differences. Currently I am studying the ontogenetic development of the ctenidium to find out at what age the ctenidium becomes suitable for filter-feeding.

## ACKNOWLEDGEMENTS

I would like to thank Dr. Wally Clark at the Bodega Marine Laboratory for his class in electron microscopy techniques, from which many of these micrographs resulted, and the COA for their financial support which allows me to continue to study the development of the ctenidium.

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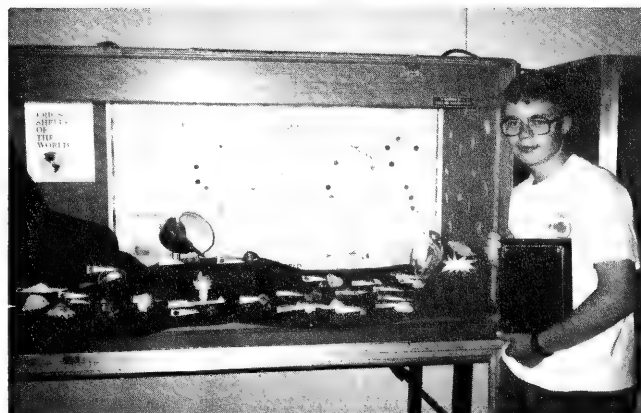
Bunny and Bill Fulton with their exhibit, "Glossary for Shellers," their COA Trophy and their Exhibitors' Award at the Georgia Shell Show last April. Good job, you two!



Dean Weber (left), winner of the North Carolina Shell Show COA Trophy for his exhibit, "Some Shells Get Around . . . Some Don't." Walter Sage, one of the judges for the show, is on the right.



Down Under with the COA Trophy: Jean Offord and her daughter, Judy Mason won the COA Trophy in the 1990 Keppel Bay Shell Show for their exhibit, Shells and Their Environment. Jean and Judy show off their trophy above, in the company of Alan Hinton. Club President A. Davidson is in the background.



The Oregon Society of Conchologists awarded the Corinne E. Edwards Memorial Award for student exhibitors to Eric Putnam of Portland for his exhibit of worldwide shells. The Edwards Award is a new trophy sponsored by the Miami Shell Club.

## SOME THOUGHTS ON SPECIES DIFFERENTIATION

by Emilio F. Garcia

In discussing the validity of new species, the question often comes up: "But what constitutes a new species?" Obviously, this short essay is not going to presume to answer a question that was so aptly and completely discussed by Ernest Mayr almost a half century ago. Our hobby, however, deals with a phylum that is large and complex, many of whose members inhabit almost unreachable areas, and about which we often know nothing except what we can discern from the empty shells available to us. Because of these difficulties, it is, in many cases, impossible to apply the classical definition of a species to forms that are not obviously different morphologically and/or anatomically.

To reach a tentative decision as to the validity of a species for which available scientific data may not be sufficient to the task, we may find it necessary to resort to some logic, some personal philosophy and a dash of the pragmatic approach.

We know that there have to exist two factors for speciation: "the development of diversity and the establishment of discontinuity between the diverging forms" (Mayr, 1942). Although geographic isolation is the more common means of establishing discontinuity between populations, Mayr (1954) observes that "other processes of speciation in marine invertebrates with a different ecology or a different reproductive pattern" are possible.

It is the problem of the taxonomist to decide if the barriers between populations are sufficient to have created a new species. The act of describing the new species, therefore, indicates that the taxonomist has reached the conclusion that they are sufficient.

With the proliferation of names that has occurred in the last decade or so, one has to wonder whether or not the conclusions reached by these taxonomists stand up to what one can logically deduce after analyzing all available facts, particularly when arguments are based on shell morphology or when not enough anatomical differences support the thesis of a new species. In these cases we must ask ourselves, is there really enough variability? Is there really geographic isolation?

To reach any sort of valid conclusion about a species, one obviously must have available a large series of specimens with reliable locality data. It also seems to be of value to examine the family to which a species belongs. How is it characterized? If a number of species all belong to a single family, there must be a tendency to interfamilial traits. Members of the Ranellidae, for example, tend to have a longer-than-usual veliger stage, which, because it allows wider dispersal, makes speciation more difficult. On the other hand, many members of the Volutidae are born with a shell, in the crawling stage, and so are more easily isolated. Although protoconch studies may not be of importance in some families, in other groups, as in the Muricinae, they are essential for species differentiation.

It is particularly difficult to establish geographic isolation for species known to inhabit deep water, because apparent isolation of populations may mean only that insufficient collecting has been done throughout the range of the species. It is also very difficult to establish "sufficient variability" for speciation when local populations of closely related forms are in themselves variable.

Take *Trophon geversianus* (Pallas, 1774), a muricid from Argentina, for example. In a single population, one can find very smooth, somewhat elongated specimens; heavily varixed, globose specimens; and cancellated specimens, with intergrades. The potential for variability in *T. geversianus* and in many members of the Trophoninae has caused the erection of many



Photo by Emily Vokes

**Intraspecific variation in *Trophon geversianus*. All specimens from Ushuaiah, Tierra del Fuego, Argentina.**

synonyms. It seems to me, therefore, that when describing a new species or subspecies of a group that is genetically predisposed to superficial variability, a taxonomist should be sure that it is anatomically different (in the case of a new species) or geographically isolated (in the case of a new subspecies) before a new name is assigned.

Paradoxically, I find it easy to accept as valid two closely related species that are sympatric but readily separable from one another. A case in point is the *Conus cedonulli* complex treated in the last issue of *American Conchologist*. Here we have a complex that belongs to a family of shells outstanding for the infraspecific variability of many of its members (e.g., *Conus textile* Linne, 1758). Moreover, the complex occupies a large portion of the Caribbean coastal area and offshore islands from, at least, St. Lucia to the offshore Honduran islands I have Honduran specimens of *Conus cf. aurantius* Hwass from two different localities, *C. harlandi* Petuch notwithstanding). This long expanse of coastline provides variable habitats to a group already predisposed to variability within single populations. It is true that a person knowledgeable about the complex would be able to tell, just by looking at a specimen, the general area in which it was found, but then a Caribbean volute collector would also be able to tell, in most cases, the locality from which a particular specimen of *Voluta musica* Linne came.

Considering all this, we have to ask ourselves, is there enough geographic isolation between Mustique, St. Vincent, St. Lucia and Trinidad to give the forms that inhabit those islands specific or subspecific names? Is there at least enough environmental difference in their habitats to preclude *Conus "mappa"* from invading *C. cedonulli* territory? Is there enough variability? It is true that *C. "mappa"* has an "apertural constriction" (see *American Conchologist* Sept. 1990, p. 4) that is lacking in *C. cedonulli* populations, but is this sufficient? After all, other variations in shell morphology in the Conidae — calluses, pustules and such — are rather common. As a matter of fact, pustules on the surface of a cone were thought to be "specific" characteristics. Besides, here is a "species" (i. e., *C. "mappa"*) that has managed to populate from Trinidad to Panama, including offshore Venezuelan islands, but is not found together with *C. cedonulli* in Grenada, a relatively short distance from Trinidad, its type locality. Forms of *C. "mappa"* live in deep water, and I am not aware of any ocean current or lack of suitable habitat that would prevent *C. "mappa"* from inhabiting *C. cedonulli* territory; therefore, I just cannot justify it as a separate species.

One may argue that a number of geologic changes have occurred along the Caribbean coastline that support the creation of new species and subspecies in the complex; after all, this complex does not have a swimming veliger stage. And my argument against that would be: neither does *Voluta musica*,

\* 135 Oak Street, LaFayette, LA 70503.



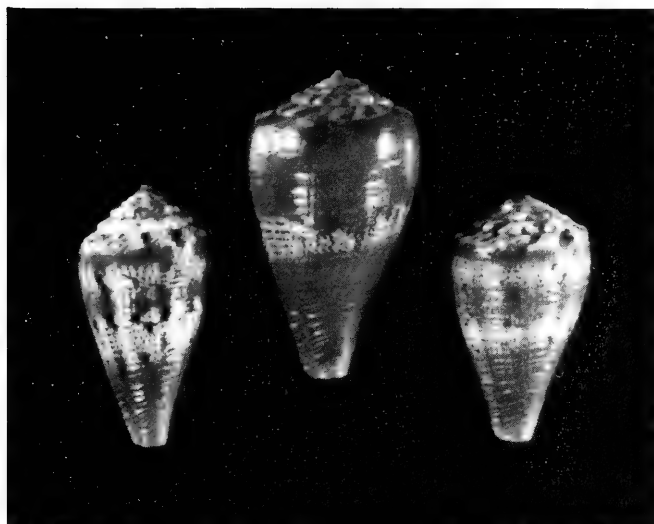


Photo by Kevan Sunderland

*Conus cardinalis* Hwass, 1792. 20-50' on live coral, Utila, Honduras.

which occupies most of the same geographic area, and which has been given, throughout its nomenclatural history, more than 25 different specific or subspecific names.

However, I am a practical person, and the *C. cedonulli* specimens in my collection bear the names assigned to them by Vink and von Cosel (1985) in their well-documented monograph on the subject. And, to those who may disagree with my deductions above, I will say, "You are probably right."

Another example, to keep it in the family, is the *Conus cardinalis* complex. Since I don't want to raise waves that some may consider a storm, I will stick to *C. cardinalis* vs. *C. "kulkulcan."*

Some ten years ago I collected in southern Roatan, Honduras, a large dead cone which, although it was somewhat different, I identified as *C. cardinalis*. Later, in a different area of Roatan, *C. "kulkulcan"* was discovered. It was not until a year or more after its description that I saw a large series of *C. "kulkulcan"* in the collection of the well-known Florida diver Ted Kalafut; and I realized that my original specimen was *C. "kulkulcan"*. What impressed me the most in seeing Ted's series was the incredible variability in a single population, from narrow, dark-colored specimens with still darker streaks to wider, solid orange specimens. At this time I had still not seen true *C. cardinalis* from the Bay Islands. Later, however, I saw several series collected in the nearby island of Utila and I obtained a large specimen from Cayos Cochinos, also near Roatan. And what I kept telling myself was: here is a species that has managed to populate many distant Caribbean islands but has not managed to cross the few miles that separate Utila and Cayos Cochinos from Roatan, although no geographic or ecological barrier would impede such extension. Besides, the largest concentration of *C. "kulkulcan"* is (or perhaps now, due to overcollecting, was?) found in West End, Roatan, just across the channel from Utila.

My wondering came to an end a couple of years ago, when I obtained from a native diver a series of *C. "kulkulcan"* that ran from the typical form to a perfect match for Utila and Cayos Cochinos specimens, both forms very similar to the Jamaican form, named *C. inconstans* by E. A. Smith (1877) and which, in my opinion, is another junior synonym of *C. cardinalis* Hwass, 1792.

The only thing that continued to bother me was why there seemed to be different habitats for *C. cardinalis* and *C. "kulkulcan."* The former inhabits the deep recesses of solid reef structures in relatively deep water, but "*kulkulcan*" is found in shallower water, mostly under rocks. The enigma was solved in two ways. First, I realized that my original specimen of *C.*

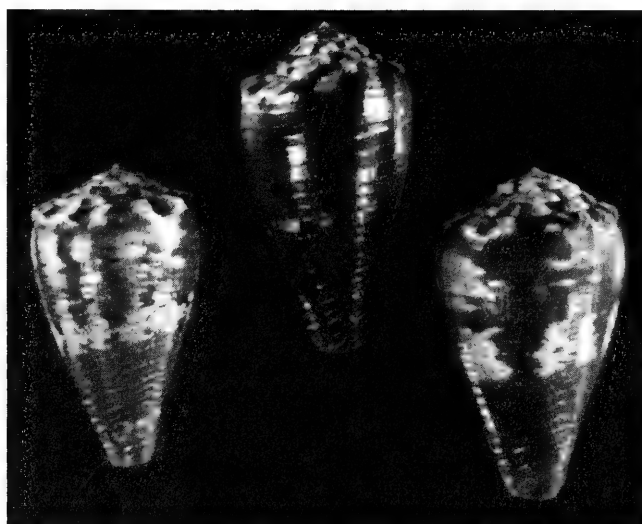


Photo by Kevan Sunderland

*Conus kulkulcan* Petuch, 1980, 20-30' in reef rubble, West End, Roatan, Honduras.

"*kulkulcan*" was collected in an area where only the typical *C. cardinalis* habitat existed, and that several other specimens were later collected in the same surroundings. They were all dead specimens because all dives were made during the day, but they proved that *C. "kulkulcan"* also inhabits typical *C. cardinalis* habitat. The habitat solution was also corroborated indirectly during a recent trip to one of the offshore islands in Belize. There, in 3 feet of water, **under rocks**, we found seven live specimens of *Conus granulatus* Linne, 1758, a species which normally has the same habitat as *C. cardinalis* — deep water in deep recesses in the reef. The fringing reef here was built in such a way that there were large, clear spaces under the piles of rocks, creating the same labyrinthine habitat as the honeycombed deep-water solid reef. If *granulatus* can be found in shallow water under rocks, it is no longer surprising that a form of *C. cardinalis* can also be found in shallower water and under rocks.

However, I am a practical person; so, do I have my *C. cardinalis* specimens from Roatan and Guanaja labeled as *C. "kulkulcan"*? No. And to those who disagree with my conclusions, I will say: "You are probably right."

Now, why this preoccupation with specific and subspecific exactness? After all, as a friend put it, "It doesn't matter one whit to the collector whether this species or that can interbreed." Personally, however, I have a fetish for scientific accuracy. Although I know that I will never have the answer to many of my problem species, and although, like most collectors, I would like to have every form of *C. cedonulli* there is, I know that assigning a name to a specimen only because I could distinguish it from the next, would result in chaos instead of order, with "hybrid" specimens "popping up" here and there, with a caravan of names that ultimately would become meaningless, as insignificant as no name at all.

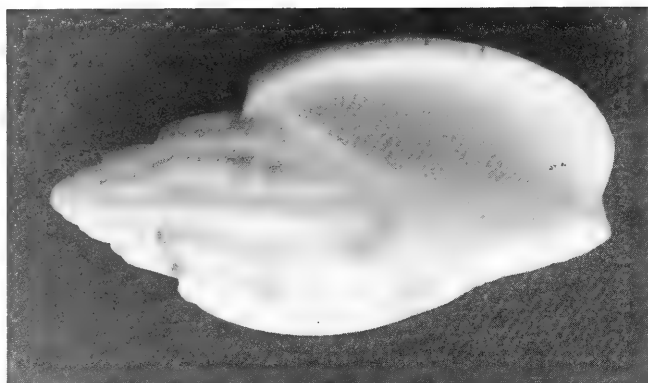
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#### LATIN AMERICAN MALACOLOGICAL CONGRESS

The Premiere Latin American Congress of Malacology will be held in Caracas, Venezuela in 1991. The probable date will be in August. For further information write to Sr. Roberto Cipriani, Fundacion Cientifica Los Roques, Apartado Postal 1139, Caracas 1010-A, VENEZUELA, or Sr. Ricardo Molinet, Universidad Simon Bolivar, Instituto de Tecnologia Y Ciencias Marinas, Apartado Postal 89.000, Caracas 1080, VENEZUELA.





Maurice Maurel's specimen of *Lyria (Harpoleola) anna Lesson*.



Maurice Maurel showing the spot where he collected *Lyria anna*, at Pointe aux Rochers on the south coast.

## MAURITIUS, ILE DE FRANCE

by Aurora Richards

December 14, 1989

After a short incursion into South Africa, visiting hospitable members of the South African Malacological Society in several locations, I am on a 2,000 km flight from Durban to Mauritius. A port side glimpse of the south coast of Madagascar. . . later, on starboard, a view of the peak of Reunion's great volcano, soaring high above the shredded clouds at sunset.

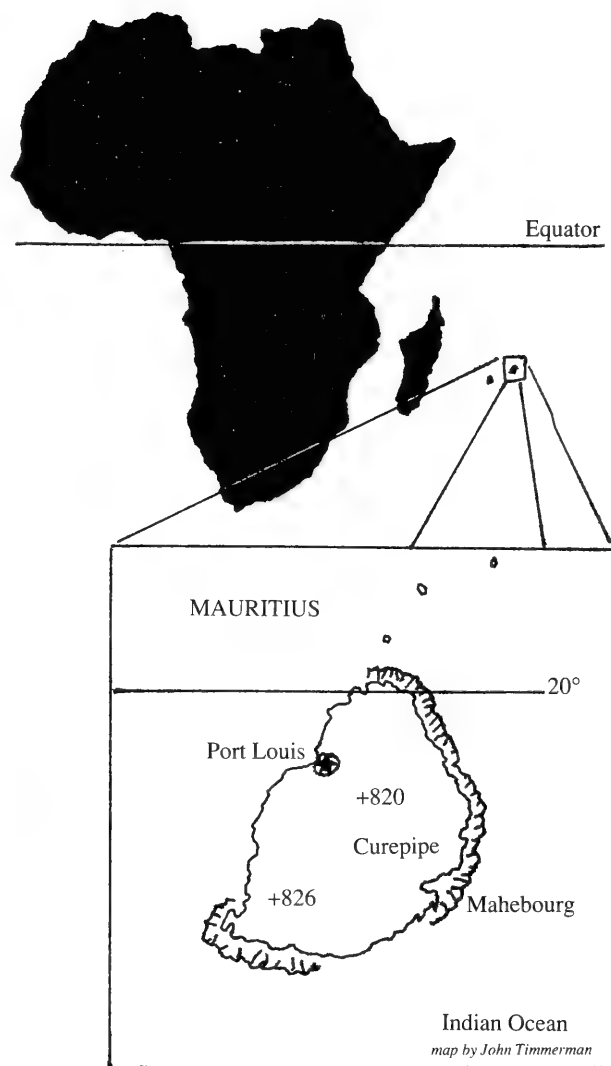
A hectic drive from Mauritius' Plaisance airport in a rattletrap vehicle proudly exhibiting the sign, "Taxi," brings me to a tropical holiday resort, where I must join a long queue at the reception desk. The high rates prove so undefensible for the quality of services that the next morn finds me trekking down the coast in search of a quieter spot better suited to my bucolic mood and budget. . . .

A small rustic inn at Pointe d' Esny. . . I just can't resist its poetic name, "Chantauvent" or "Song-in-the-Wind," and its old-fashioned creole charm. The landlady is rotund and talkative, so is the jovial cook, and the breezy rooms are suspended in mid-air between beach and sea. . . .

Far from the madding crowd, I can at last explore those dazzling beaches, studded with black rocks, hosts to large colonies of pink, speckled *Nerita plicata* Linné, 1758 and *Planaxis sulcatus* (Born, 1778).

A strong breeze blows at this time of the year, and the sparkling lagoon inside the reef is ideal for snorkeling. A few tiny fish and crabs are the only sign of life in the shallows: no algae, only dead coral and bare rock, no shells underneath. . . .

\* Aurora Richards is back in Spain: "La Esmeralda" (Buzon 22) Costa Nova — Zona Panorama I22 Javea — Prov. Alicante, SPAIN.



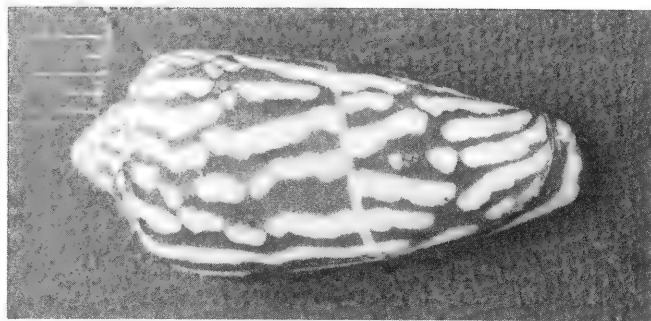
Mauritius' aquamarine lagoon beaches have the same extraordinary luminescence peculiar to the coast of East Africa. They are edged by the ever-swaying plumes of the casuarina trees, sometimes shaken by cyclonic winds sweeping in from the southeast during the austral summer. Plenty of unpolluted fragrance with which to fill one's lungs, dispels the rather stagnant humidity of Durban.

At night, too, this secluded spot feels totally secure, the air stirred only by light gusts, and the melodious calls of cheeky, tame local birds roosting in thousands in their favorite trees. Nowhere else have I gazed at so many shooting stars in a black velvet sky. . . .

Surprise, surprise! A young Indo-Mauritian is waiting for me at the hotel desk with a trayful of seashells! "Yes, Madame, these are all rare shells from Mauritius!" says he in his creole-flavored French. News travels fast on a small island! Among the "genuine Mauritian shells" he offers for sale, only one is actually indigenous: a nice *Cypraea mappa* Linné, 1758 with a deep, bright purple blotch on the base. All the others are typical, common Philippine imports.

When I inquire by name about the famous local species, he shakes his head in apology: There are no more shells in Mauritius! "But he has a 'friend' living ten minutes away, who might just be 'willing to help'". . . .

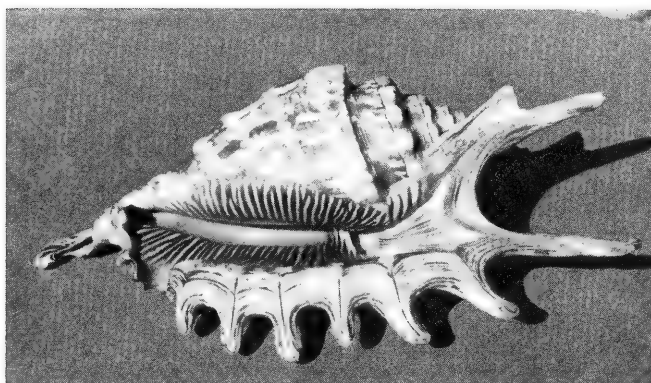
Off we go in the hot December morning to Mahébourg, a sleepy little town with open sewers along the streets, to call at a tiny Indian-style boutique of sundries and shell artifacts, in a



Unidentified cone from the sand quarry at Flic en Flac. (c.f. *Conus rubiginosus*)



*Conus timorensis* Hwass, two color forms taken from the same colony in the southwest of Mauritius.



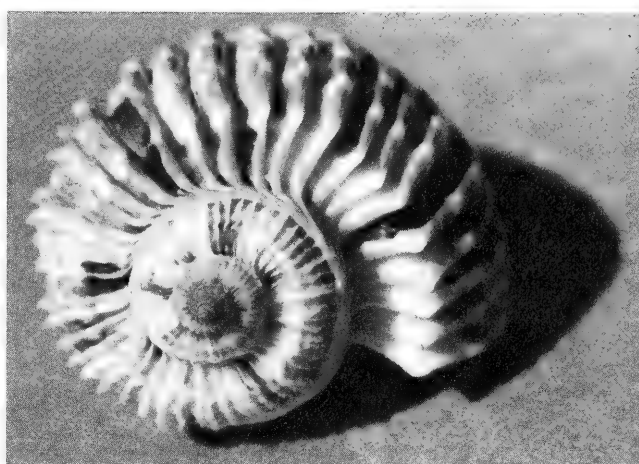
*Lambis digitata* Perry, taken near reef at low tide, off Black River.

dusty back yard. My guide whispers a few words of jargon into the shopkeeper's ear, and out comes a treasure box from behind the counter. . . I find myself haggling (One is expected to bargain!) over a pair of overpriced *Harpa costata* (Linné, 1758), six *Conus timorensis* Hwass, 1792 and a few *Oliva williamsi* Melvill & Standen, 1897. We settle for just over half of the initial figure, provided I pay in American dollars. This will remain my only experience with Mauritian shell dealers.

The highlight of my stay: meeting Maurice Maurel, a veteran shell collector and authority on Mauritian malacofauna, who has offered to show me round his small country. . . and his vast lifetime collection.

It doesn't take us long to drive round an island roughly 40 by 50 km. Scores of small, picturesque villages stud the lush coasts and slopes and have amusing, descriptive names in Old French: Beaux Songes (Sweet Dreams), Riant Bel (Pretty Smile), Mon Plaisir (My Pleasure), Beau Vallon (Beauty Dale), Trou aux Biches (Does' Shelter). . . Rose Belle, Flic en Flac, etc. . . Ile aux Cerfs, on the east coast, is of an indescribable beauty, and an excursion is a must.

In the old days of plenty, *Lambis digitata* (Perry, 1811) used to be collected off Rivière Noire (Black River) and *Harpa costata* near Blue Bay in the southeast. Flic en Flac on the west coast has a sand quarry 50 meters inland from the beach where heaps of rare shells in semi-fossil condition could be picked up when access was free years ago. *Conus timorensis* in beautiful



*Harpa costata* Linné from Blue Bay — spire details.



"Les 3 Mamelles" seen from a crater near Curepipe.

oranges, deep reds and purplish pinks occasionally turn up in 25 meters on coral sand on the southwest coast, but of course the exact location is carefully kept secret. Giant variants of *Oliva tremulina* Lamarck, 1811 are still found in limited numbers near some of the surrounding islets (St. Brandon in the north). The sum total of my own catch is one empty *Oliva olympiadina* Duclos, 1844 from outside Black River. Another specimen lying nearby was the home of a tiny octopus which turned pink with indignation when I tried to entice him out. So I left him alone. . . .

The most desirable item in the Maurel collection is *Lyria (Harpeola) anna* Lesson, 1835, which Maurice found dead, rolling on sand near a reef at Pointe aux Rochers on the south coast. Ever since, he has hunted the area, high and low, for its twin. The type locality for this species, designated by Reeve in 1849 as being the "Moluccas," is doubtful to say the least. Most beach specimens existing in old collections come from the Caragados Carajos Shoals (16.38°S — 59.38° E), north of Mauritius, on the crest of the submarine chain edging the Mascarene Basin to the east and running all the way northwest to the Seychelles.

If Mauritian shells are getting scarcer, it is partly due to the local fishermen's treatment of the coastal habitats where, as happens in so many other localities in the Indo-Pacific, reefs are blasted with dynamite and lagoons cleaned bare of marine life by the use of fine mesh nets, leaving only bare sand and rock. Shoals of fish that used to flock through the channel passes in the reef have also become scarce. The reef runs almost uninterrupted north to southeast, and west to the south coast, at variable distances from the shore. It slopes gently into the deep to 100 meters, then beyond 3,000 meters, unlike the barrier reefs around French Polynesian islands, where the outer cliff plunges precipitously, making SCUBA diving practically impossible.

The sights inland are even more unique. The island is a range of volcanic mounts oriented southwest to northeast, with 20

craters, two of them with lakes. The most spectacular peaks are called, by analogy, "Les 3 Mamelles." Every beauty spot or crater, and each one of the 30 rivers has been given an apt name: Cocotte, Perruche, Papaye, Trou du Diable (Devil's Hole). There is a good-to-mediocre circular road, and another across the center from Mahébourg to Port Louis, the capital, via the thriving market town of Curepipe (Scour-the-Pipe!).

The island also boasts beautiful Botanical Gardens with century-old tortoises, a Bird Conservation Park, and Aquarium and a Historical Naval Museum, all well worth a visit.

The multiracial population is mostly Indian, descended from Madras and Bengali immigrants and contract laborers for the sugar cane industry. They are Hindu and Moslem, and have brought their currency along: one U.S. dollar equals about 15 rupees. The national dish is — why not? — curry with rice and "rôti" à la créole.

The vast fields of sugar cane and their refinery plants still provide the island's main income, but there is now a soaring demand for the manufacturing of shirts, clothes and jewelry articles that find a ready outlet on the Paris fashion market. Deer are bred in parks, mainly for export to European hunting grounds.



**M.V. AKADEMIK ALEXANDR HESMEROV**, research vessel of the Academy of Sciences of the U.S.S.R. anchored in the Bay of Rabaul, East New Britain, on May 23, 1990.

## THE RUSSIAN CONNECTION

by Aurora Richards

Last May, the famous Bay of Rabaul, East New Britain, New Guinea, was host to **M.V. Akademik Alexandr Hesmerov**, the research vessel of the Academy of Sciences of the U.S.S.R. in Leningrad, with Far Eastern branches in Vladivostok and Kamchatka in the northern Pacific.

During their two week stay the team of scientists on board worked on a range of subjects and a great variety of marine fauna in the unusual Rabaul environment, but their main interest centered on volcanic geology and chemistry.

Introduced as the "shell lady" by the resident volcanologist who is a close friend of mine, I was honored with an invitation on board by the chief of the expedition, Professor Zhirmunsky. I spent two of the most thrilling and informative days of my sheller's career. The atmosphere on the ship was particularly warm and friendly, and I spent quite some time in the marine biology laboratory, which was headed by Dr. Nicolay Selin, a young and keen malacologist.

Most of the team speak fairly fluent English or French, so our animated conversations ranged from impending eruptions, molluscan habitat and behavior, and the protection of whales, to a hint of politics and a bit of gossip as well . . . they were unanimous in expressing the necessity of a prompt reconciliation between East and West. After the fall of the Iron Wall a "rap-

The lingua franca is creole, a singing archaic French mixed with some Malagasy (almost identical to the creole spoken in Martinique) with no R's pronounced. It is characteristic of the languid demeanor of the creoles, unhurried, fun-loving people and great company. Indo-Mauritians often speak Bhojpur among themselves, but the official languages are English and French, though a few people speak the former.

The history of Mauritius is a succession of occupations by the Arabs, Malay, Portuguese, Dutch, French and English, who used the island as a port of call for their trading ships. They all left their stigmas on the natural environment. The first settlers decimated the ebony forests and exterminated the dodo and other indigenous birds, which, unfortunately, were easy-to-catch culinary delicacies. Nature lovers can go and shed a tear over the exhibits of the extinct dodo at the Natural History Museum in Port Louis, where, by the way, some Mauritian shells are also on display.

I could go on and on about this blessed island, but the time has come for me to move on to my next destination.

(If you plan to visit the Mascarene Islands, take my hint: choose a "low season" of the year!



Right to Left: Academician **PROFESSOR ALEXEY ZHIRMUNSKY**, head of this expedition, Chief of Department of Marine Biology and of the Laboratory of Physical Ecology at the Institute of Marine Biology in Vladivostok. **DR. VITALY TARASOV**, who specializes in the biology of bottom-dwelling invertebrates, especially in volcanic habitats. He headed several expeditions in the Kuril Islands and Kamchatka Peninsula, and is one of the pioneers of SCUBA diving for scientific research in the Soviet Union. **DR. LYUDMILA CHERTKOVA**, a distinguished geologist specializing in volcano chemistry, currently attached to the Institute of Volcanology in Petropavlovsk, Kamchatka. Towering above is **PROFESSOR VLADIMIR MALAKHOV**, Chief of the Department of Invertebrate Zoology at the Moscow State University (a super expert on Arctic malacofauna). Next to **AURORA RICHARDS**, at the far left, is **IRINA BARSEGOVA** of the Institute of Marine Biology in Vladivostok, who acts as Secretary, interpreter and soul-of-the-party!

prochement" is on the way; some European and Asian shell collectors have already established regular contacts with their Russian counterparts, with fruitful information, and receipt of species the Russians are bringing up in the Indian Ocean and Arctic Seas.

Let us hope this is only a beginning and that visiting one another in our homes will become a current event in our shellers' lives in a not-too-distant future. Wouldn't it be nice to make a lot of new friends?

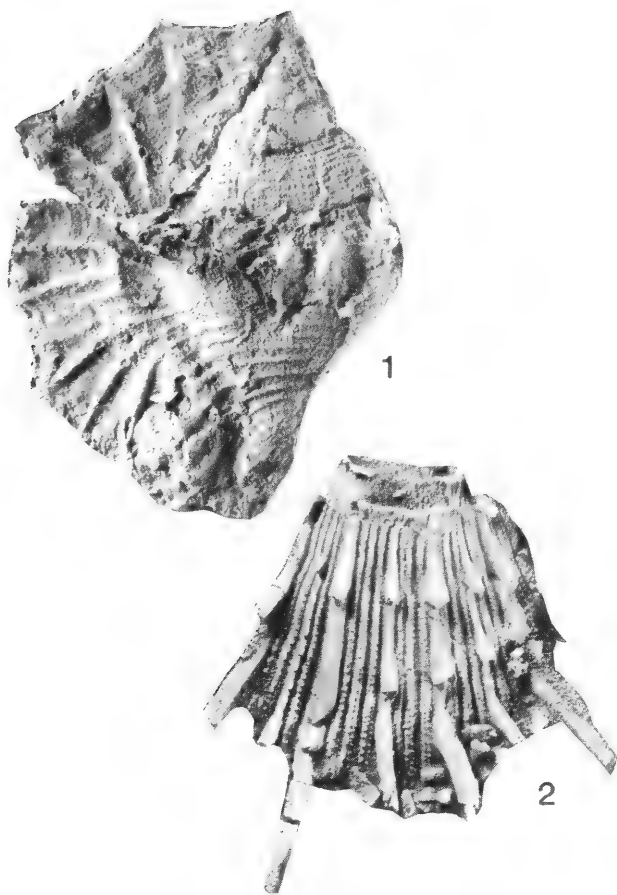


Fig. 2 Examples of new species from the Bateque Formation, Baja California Sur, Mexico. 2. 1, the strombid gastropod *Platyoptera pacifica* Squires & Demetron, 1990a, holotype, IGM 5055, latex peel of external mold, abapertural view, height 42mm. 2.2, the spondylid bivalve *Spondylus batequensis* Squires & Demetron, 1990b, paratype, IGM 5065, right valve, height 15mm. (excluding long spine).

## NEW EOCENE MOLLUSKS FROM BAJA CALIFORNIA SUR, MEXICO

by Richard L. Squires

In 1989, I was fortunate to receive a much-needed COA research grant that helped me defray field expenses for my current work in Baja California Sur, Mexico, on a previously unstudied assemblage of fossil marine mollusks. The fossils are early-to-middle Eocene in age (about 55 to 50 million years old).

In the last two years, my co-worker, Bob Demetron, and I have made three trips to the study area in the northern part of Baja California Sur (Fig.1). Bob is the geologist who found the fossils. These trips are fast paced because of the limited time. Four days out of each eight-to ten-day field session are spent driving from Los Angeles. During our last trip in April of this year, for example, we drove 2000 miles in eight days, and 300 of those miles were spent on dirt roads that have taken us to some incredibly remote areas. A sturdy four-wheel-drive vehicle that runs on regular gas is a necessity.

The collecting of the fossils, however, has been most rewarding. Each time we visit the outcrops, we find more new species. So far, we have found three new species of gastropods. Two of these are a neritid and strombid (fig.2.1) (Squires and Demetron,

1990a). We also found the first occurrence of Cypraedia from the west coast of North America. The other new species of gastropod is a siliquariid (Squires, 1990a).

We have found even more new bivalves. These include a new genus of pectinid, a new subgenus and new species of pycnodontid oyster, a new species of another pycnodontid oyster, a new species of *Spondylus* (Fig.2.2), and a new species of *Cubitostrea* (Squires and Demetron, 1990b). This is the first occurrence of *Cubitostrea* from the west coast of North America. In addition, I have named a new malleid species and a new lucinid species (Squires, 1990b, 1990c).

Finally, we have discovered a new species of calcareous sponge (Squires and Demetron, 1989).

We are writing a monograph-length paper on the macropaleontology of the Bateque Formation. I shall concentrate on the mollusks and echinoids, and Bob will focus on the many corals we have found.

The Bateque fossils are exciting to work on because they indicate a more warm-water influence than any other west coast Eocene molluscan assemblage I have worked on in my 16 years of research. The species are closely related to ones that live in the ancient tropical Tethyan Ocean in the area now represented by the Middle East and India. The Bateque fossils represent an important paleogeographic link between early to middle Eocene faunas of the Pacific coast of North America and those of the Caribbean/Tethyan faunas to the east.

We are most grateful for the kind cooperation of M.C. Perrilliat (Instituto de Geologia, Universidad Nacional Autonoma Museum de Mexico = IGM) who arranged for us to obtain permission to collect fossils in Baja.

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Fig. 1 Location map of the study area, Bateque Formation, Baja California Sur, Mexico.

\*Department of Geological Sciences — GEOS, California State University, Northridge, CA 91330.



# HELP, HAS ANYONE SEEN THE TYPES OF A. H. VERRILL'S SPECIES?

by Emily H. Vokes

In two recent papers (Vokes, 1989, 1990), I have been frustrated by the fact that the type material of species described by A.H. Verrill cannot be located. In preparation for the 1990 paper I decided to mount an extensive search because one of the Verrill species, should it prove to be valid, may be one of two possible species of *Murex* s.s. from the western Atlantic.

This species is the one named as *Murex maculatus* by Verrill in *The Nautilus*, 1950. If it should prove to be a valid species, and there is some question about this, then a new name will be necessary, as *Murex maculatus* Verrill is preoccupied by *Murex maculatus* Reeve, 1845.

In a catalog of the taxa named by Addison Emery Verrill, Johnson (1989) also included those taxa named by Alpheus Hyatt Verrill (1871-1954), the second son of A.E. Verrill. Johnson further adds that A.H. became a naturalist and spent much of his life in Central and South America. Not until he was 73 did he establish a shell business in Lake Worth, Florida, and begin to describe new species of Caribbean mollusks (Johnson, 1989, p.12).

Most of these were named in the **Minutes of the Conchological Club of Southern California**; in the list below these are cited as MCCSC. However, a few were named in an article in *The Nautilus* (v.63, 1950) that is inexplicably not included in Johnson's bibliography of Verrill (1989, P.96-98), although the species named therein are included in his catalog.

In the interest of locating the types of these species I am extracting from Johnson a list of the taxa described by A. H. Verrill:

- Aaronia*, new subgenus, 1950, MCCSC, no. 103, p.4  
*alba*, *Voluta musica* subsp., 1953, MCCSC, no. 132, p. 9 [non *V. alba* Kanmacher, 1798]  
*alfordi*, *Voluta musica* subsp., 1953, MCCSC, no. 134, p.4, fig.  
*barbadiensis*, *Cypraea carneola* subsp., 1948, Mollusca [Tavares, Florida], v.2, no.3, p.70  
*brandii*, *Mitra*, 1950, MCCSC, no. 104, p.3, fig.  
*briskasi*, *Murex*, 1953, MCCSC, no. 128, p.2, fig.  
*consuela*, *Murex pulcher* subsp., 1950, MCCSC, no. 101, p.7, fig.  
*dominicana*, *Astraea tuber* subsp., 1950, MCCSC, no. 101, p.7, fig.  
*helenae*, *Murex*, 1953, MCCSC, no. 132, p.10, fig.  
*leucozonia*, *Engina*, 1950, MCCSC, no. 104, p.3, fig.  
*maculatus*, *Murex*, 1950, *Nautilus*, v.63, p.126, pl. 9, fig.3  
*margaritana*, *Voluta*, 1954, MCCSC, no. 104, p.4 [new name for *V. ornata* Verrill, 1953, non Verrill, 1950; non *V. ornata* Link, 1807]  
*mohorteri*, *Cymatium (Ranularia)*, 1952, MCCSC, no. 119, p.2, fig.  
*neglecta*, *Cypraecassis testicula* subsp., 1949, Mollusca [Tavares, Florida], v.2, no.5, p.9, pl.2, fig.5  
*ornata*, *Voluta musica* subsp., 1950, MCCSC, no.102, p.5, [non *Voluta ornata* Link, 1807]  
*ornata*, *Voluta*, 1953, MCCSC, no.132, p.9, fig. [non *V. musica ornata* Verrill, 1950, see *V. margaritana* Verrill, 1954; non *V. ornata*, Link, 1807]  
*rehderi*, *Cymatium*, 1950, *Nautilus*, v.63, p.126, pl.9, fig.1 [do not confuse with *C. raderi* D' Attilio and Myers, named for Jack Rader, not Harald Rehder]  
*rubida*, *Hemitoma*, 1950, *Nautilus*, v.63, p.126, pl.9, figs.2, 2a  
*ruthi [sic]*, *Astraea*, 1948, Mollusca [Tavares, Florida], v.2, no.3, p.70, fig. [stated to be named for his wife, Ruth]  
*sanguinea*, *Voluta musica* subsp., 1950, MCCSC, no. 102, p.5  
*spectabilis*, *Strombus costatus* subsp., 1950, *Nautilus*, v.63, p.127, pl.9, fig.4

\*Department of Geology, Tulane University, New Orleans, LA 70118

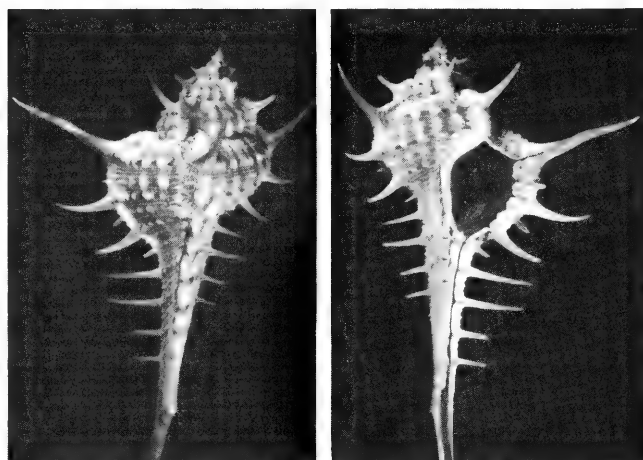


Figure 2. *Murex (Murex) carbonnieri* (Jousseaume); height 75.0mm, diameter (excluding spines) 28.8mm; Rameswaram, India (X 1 1/4).

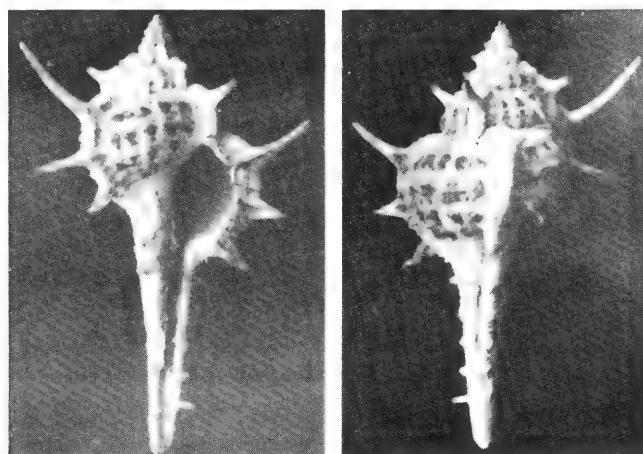


Figure 1. *Murex (Murex) maculatus* Verrill (holotype); height 47mm, diameter 19mm (fide Verrill, 1950); Dominica, Lesser Antilles (X2, approximately) (from Vokes, 1990, text fig. 1).

*trausi*, *Murex (Aaronia)*, 1950, MCCSC, no.103, p.4, fig.  
*tobagoensis*, *Voluta musica* subsp., 1953, MCCSC, no. 134, p.5, fig.

Most of these taxa, although validly proposed (see Coan, 1976), are not good species; certainly not the several "subspecies" of the notoriously variable *Voluta musica*. But some are, perhaps by default, as in the case of *Murex consuela*, proposed as a subspecies of *Murex pulcher* A. Adams. Adams' name is preoccupied and this synonym becomes the next available name for the species; as such it has come into the literature of the Caribbean fauna as *Chicoreus (Siratus) consuela*.

Without examination of the type material the validity of others of the species remains in doubt. Take, for example, *Murex maculatus*, mentioned above. The illustration of the type specimen (fig.1) shows a shell that is close to the Red Sea/Indian Ocean species *Murex carbonnieri* (Jousseaume, 1881) (fig.2) but not unequivocally the same, as it seems to lack the smaller intermediate spines on the body whorl portion of the varices.

Likewise, the shell he named as *Murex helenae* may be a synonym of *Pterochelus ariomus* (Clench and Perez Farfante, 1945) but it is probably a synonym of the Australian *Pterochelus triformis* (Reeve, 1845) (see Vokes, 1989, p.5, fig.11, for a discussion of this species) but without a type specimen we are only guessing.

I am fortunate to have in my possession (acquired from the estate of the late Katherine V.W. Palmer via Richard E. Petit) Verrill's original illustrations of a few of these taxa, if anyone is interested in seeing them. But what is really needed are the type specimens, all of which were stated to be "in the author's collection."

The question is — what became of these specimens? Mr. Petit told me that, as far as he knows, all of Verrill's collections and library went to John Q. Burch. But John Q.'s heirs, Tom and Beatrice Burch, have checked their collections and have none of the Verrill material.

Was the collection sold piecemeal by Verrill before his death? Did he leave it all to some museum that I have not thought to contact (I have tried all I thought might have it)? It is my hope that the specimens will be discovered in the Hollins College material, once that is curated by the Florida Museum of Natural History, Gainesville. But, in the meantime, if you have old

Verrill or Burch specimens in your collection, take a minute and check them out. It is possible that you may have a real treasure lurking in some dirty old shell you have forgotten that you have. I am sure these shells are **SOMEWHERE**. I doubt that anyone would have deliberately discarded them — shell collectors never throw away anything.

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- , 1990, Cenozoic Muricidae of the western Atlantic region. Part VIII — *Murex* s.s., *Haustellum*, *Chicoreus*, and *Hexaplex*; additions and corrections: *Tulane Stud. Geol. Paleont.*, v.23, nos. 1-3, p.1-96, pls.1-12, 2 text figs., 2 tables.

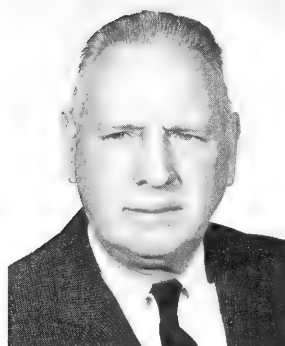


Irene Beeler, known to her friends as Rene, was born Oct. 24, 1930, and grew up in Orlando, Florida. Her fascination with seashells, from a very early age, thrived on frequent trips to the beach, and this love of shells continued to increase through the years. Then in 1974 she and her husband Carl joined the Georgia Shell Club. From that point on, her interest flourished. She was a serious student of conchology and a born teacher. She appreciated the beauty and uniqueness of all

shells, but pectens, murex, sea life and fossils were her particular interest. Everyone who knew her will agree that she was a fine and gracious lady with a warm and friendly personality. On Sat. Oct. 13, 1990, Rene passed away after a hard-fought battle with cancer. Her presence will truly be missed. Our sincerest sympathy to Carl and to her daughter Beth.

**THIS WILL BE YOUR LAST ISSUE UNLESS  
YOU HAVE PAID YOU 1991 DUES**

#### CARL ERICKSON



During the summer, COA lost one of its founders. Carl Erickson fell and broke his hip. On July 25, 1990, complications claimed his life. He was almost 89 and still collecting shells.

Carl was a classic example of a "self made man." He had to drop out of high school to work in his father's store, but that did not stop his learning. An avid reader, he became a writer, and eventually, a newspaper reporter and news editor of the **Telegram**

in Worcester, Massachusetts.

Some fifty years ago, Carl's brother spent his honeymoon in Florida. Of course he brought home some shells. Carl started identifying then and became hooked. He amassed a large, well-organized collection of shells, coral and books, including some antiques. One of his favorite activities was collecting land shells.

In October, 1972, Carl was one of the eight enthusiastic collectors who gathered in Newport, Rhode Island to organize the Conchologists of America. He wrote the first COA constitution and by-laws and presented them at the 1973 convention. Also, he was elected to the office of vice-president at the convention.

Living in Auburn, Massachusetts allowed Carl to be active in the Boston Malacological Club. He also helped to found the William Clench Shell Club in neighboring Worcester. AMU and the Hawaiian Malacological Society counted Carl among their members.

Carl led a very full and interesting life, and many organizations benefited from his enthusiasm. He was especially proud of his Swedish heritage and participated in Swedish organizations and activities. The world has suffered a great loss. We extend our condolences to his widow, J. Frances Erickson.

— Lucy Clampitt, COA Historian

#### BOARDTALK. . .

From COA Treasurer WALTER SAGE: Many thanks to the 225 members whose dues I have received as of this writing (Oct. 17). I am sure I will have many more payments by the time you receive this December issue. It is a great help to have this operating money on hand when we begin the new year, and having these checks to process keeps me from spending too many lonely nights in front of the television. Those who haven't yet mailed in their 1991 renewals are reminded that you will not receive the March 1991 issue until we receive your 1991 dues. Please help save me hours of time and the expense of sending reminders by mailing your checks now. We appreciate your cooperation.

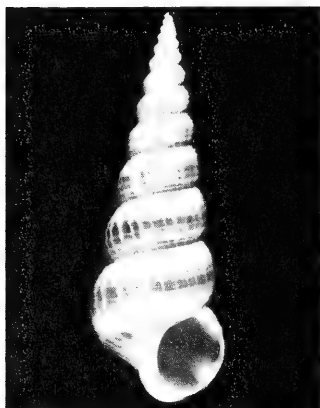
I am also pleased with the response to the back of the renewal notice, the listing of COA sales items. There are now only 30 of the spectacular 1990 COA t-shirts remaining — 4 Medium (light blue), 24 large (all three colors), 2 x-large (light blue). Don't miss out on these shirts, the last of their "model". Please send \$9 (postage paid) to me and I will send you the shirt you request by return mail.

#### IN MEMORIAM

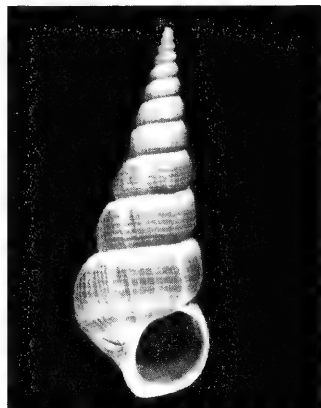
Helene Avellanet  
Irene E. Beeler  
Elsie May Burley  
Carl W. Erickson

## CARIBBEAN EPITONIIDAE PART II\*

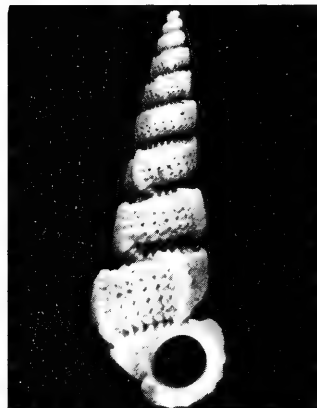
by Kevan Sunderland



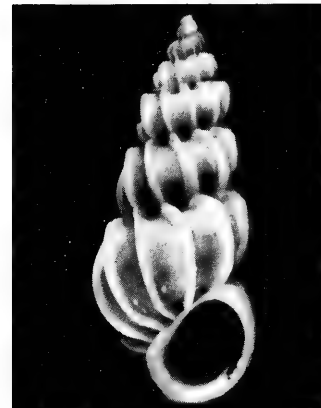
*Amaea mitchelli* (Dall, 1896). 45mm. 100', off Freeport, TX.



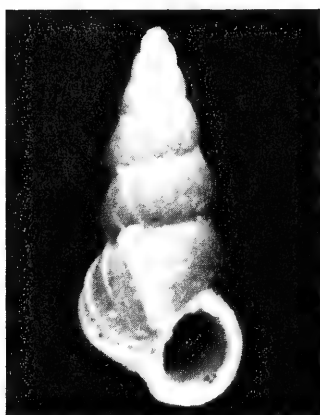
*Amaea c.f. mitchelli* (Dall, 1896). 33mm. 300', off Cartagena, Colombia.



*Cirsotrema dalli* Rehder, 1945. 40mm. 150', Caribbean Panama.



*Epitonium angulatum* (Say, 1830). Intertidal, Sanibel Island, FL.



*Epitonium championi* Clench & Turner, 1952. 12mm. 800', off Cape Cod, MA.



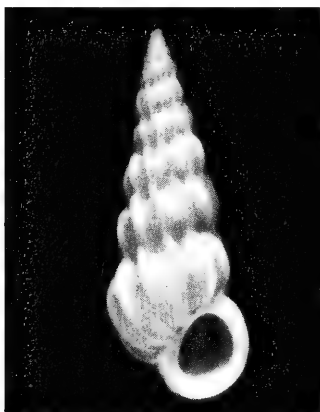
*Epitonium denticulatum* (Sowerby, 1844). 9mm. 30 fms., off Palm Beach, FL.



*Epitonium frielei* (Dall, 1889). 4mm. 100 fms., off St. Augustine, FL.



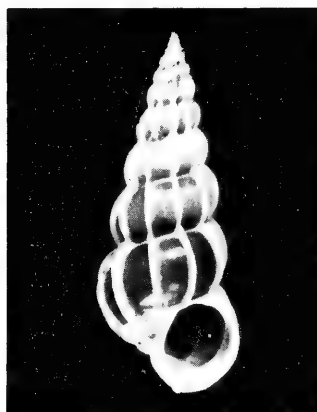
*Epitonium georgettina* (Kiener, 1839). 14mm. Intertidal, Casino Beach, RS, Brazil.



*Epitonium humphreysi* (Kiener, 1838). 24mm. 20', Fernandina Beach, FL.



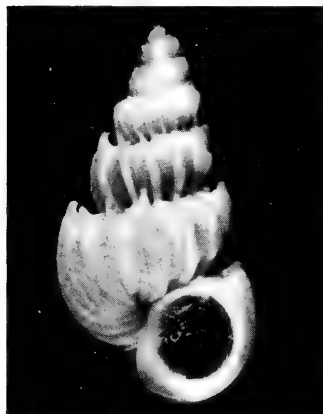
*Epitonium krebsii* (Morch, 1874). 15mm. 100 fms., off St. Augustine, FL.



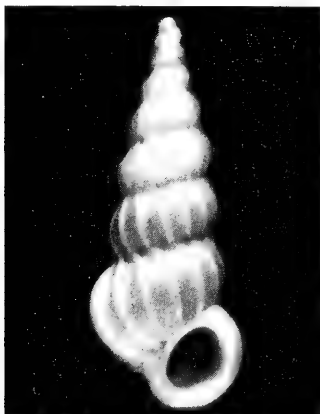
*Epitonium lamellosum* (Lamarck, 1822). 26mm. 5', South Bimini, Bahamas.



*Epitonium magellanicum* (Philippi, 1845). 24mm. 300', off Mavinas, Uruguay.



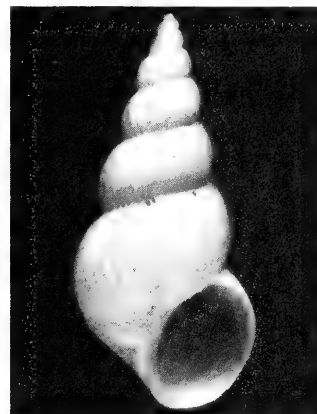
*Epitonium nitidella* (Dall, 1889). 11mm. 20 fms., off Palm Beach, FL.



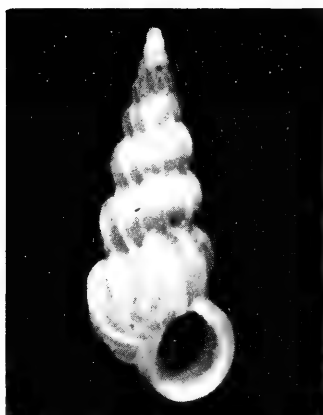
*Epitonium novangliae* (Couthouy, 1838). 9mm. Intertidal, Port St. Joe, FL.



*Epitonium rupicola* (Kurtz, 1860). 16mm. Intertidal, Sanibel Island, FL.



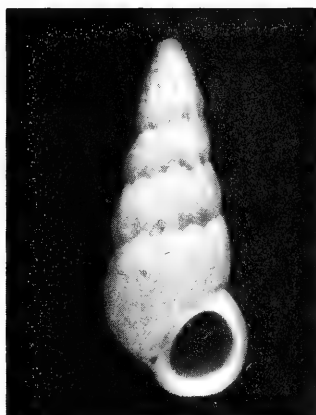
*Epitonium tenuistriatum* (Orbigny, 1840). 10mm. 100', off La Paloma, Uruguay.



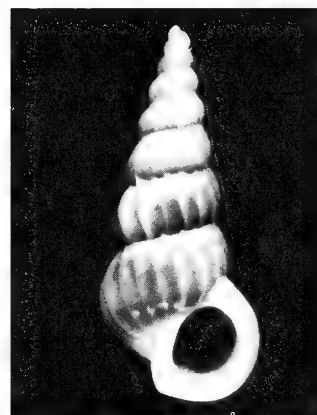
*Epitonium tollini* Bartsch, 1938. 10mm. Intertidal, Sanibel Island, FL.



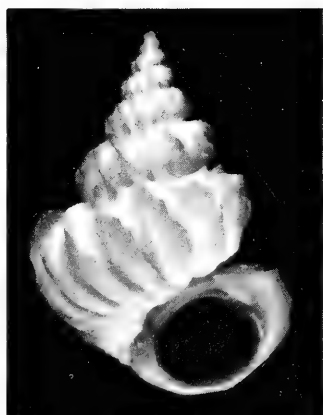
*Epitonium venosum* (Sowerby, 1844). 18 mm. 200', Barbados.



*Opalia hotessieriana* (Orbigny, 1842). 11mm. Intertidal, Briny Breezes Beach, FL.



*Opalia pumilio* (Morch, 1874). 15mm. 3', Elbow Cay, Abaco, Bahamas.



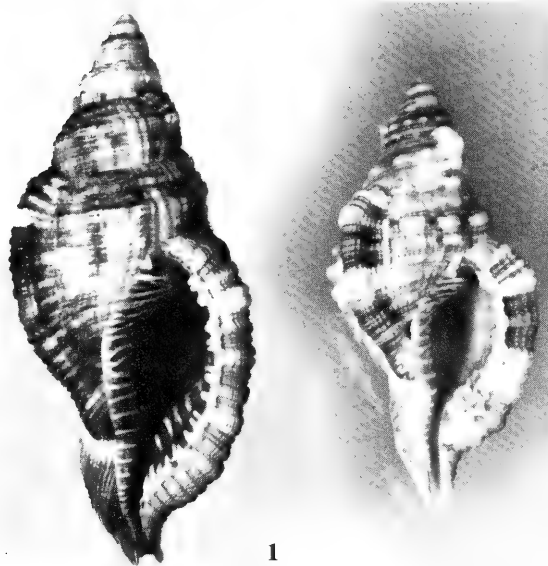
*Sthenorytis pernobilis* (Fisher & Bernardi, 1857). 42mm. 1200', North Coast, Jamaica.

The intent of these centerfolds is not necessarily to distinguish among valid and invalid species and subspecies, but to provide illustrations of taxa not popularly available, for information of the collector.

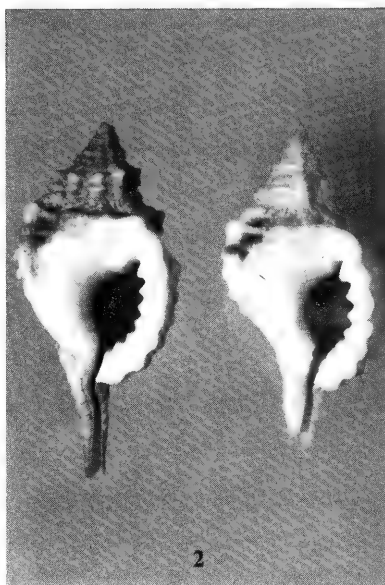
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1. *Cymatium pileare*. Left: Honshu, Japan Right: Chub Cay, Bahamas.



2. *Cymatium muricinum*. Left: Guam Right: Chub Cay, Bahamas.



3. *Cymatium rubeculum*, Philippines and *C. r. occidentale*, Boynton Beach, Florida.

## WHY THEY LIVE WHERE THEY LIVE: WORLD TRAVELERS

by Peggy Williams

Most marine molluscan species are found in a restricted area of the world. Some prefer cool water, some warm, some deep and some shallow — some even prefer salt air to salt water. Furthermore, they aren't often distributed across oceans or in widely separated oceans. Some species, however, are found on both sides of an ocean, even around the world.

### How do they do it?

Every animal has babies; these usually resemble their parents. But some mollusk babies are so unlike their parents that they've actually been mistakenly given their own scientific names, which later have had to be discarded when their juvenile status was discovered. The early, larval stages of mollusks are called "veligers." The veliger of some mollusks hatches right into a miniature crawling replica of its parents, but others are able to swim.

The molluscan veliger stage has appendages called "lobes" which are able to move like arms and help the animal to float, even swim in ocean currents. Often it has cilia, hairs or other features to aid the swimming action. Veligers spend many days — even up to a year — floating among the plankton before they settle and change (metamorphose) into their adult form.

The shell of the veliger is likely to have a sinuous double curve in the lip to accommodate the swimming lobes. It is this "sinusigerous lip" which changes the appearance of the veliger shell, causing some of the confusion which has led to the naming of juvenile shells. An excellent illustration of veliger shells of *Cypraea cinerea* Gmelin, 1791, in the December 1989 *American Conchologist* shows the sinusigerous lip of the larval shell (Fig. 7). In Fig. 8 the old lip of the veliger can be seen partway down the juvenile shell.

Ocean currents serve to disperse long-lived larval (veliger) stages of many mollusks, including members of the families Cymatiidae (*Cymatium parthenopeum* and *Cymatium nicobaricum*), Tonnidae (*Tonna galea* and *Tonna maculosa*), Cassidae (*Phalium granulatum*), Muricidae (*Thais haemostoma*), Architectonicidae (*Philippia krebsii*) and Bursidae (*Bursa thomae*, *Bursa corrugata* and *Bursa granularis*).

### Globe-Trotters

Many species of *Cymatium* have an especially wide distribution within the tropical oceans. *Cymatium parthenopeum* (von Salis, 1793), a true world traveller, has a larval life of up to a full year. Moreover, during its wanderings in the open ocean, it may cease to grow until it finds a suitable habitat for its adult life. Also, the larval shell has very little calcium in it, making it extremely light in weight. It is actually found in all temperate oceans around the world, including ten marine faunal provinces.

I have collected *Cymatium parthenopeum* at a depth of 100' off West Florida and in an intertidal area (actually out of the



*Cymatium parthenopeum* Left: Yokosuka, Kanagawa, Japan Right: Ft. Myers, Florida.

Oceans are not static; there are major currents that move the water northward, eastward, southward, and westward, so that the Atlantic Ocean, for instance, is really an enormous anticyclonic gyre.

The Gulf Stream, beginning in the Caribbean, moves northeasterly up the North American coast, warming the coastline and creating the bountiful fisheries off Nova Scotia. The North Atlantic Drift picks up near the northern end of the Gulf Stream and moves east, then south to Europe. The Canary Current moves southwest along the European and African Coast, and finally, the North Equatorial Current and the South Equatorial Current move westward, back across the ocean.

water) in Japan. Though the Japanese shell has been given a different name, the unique color pattern of yellow and brown spots on the animal, which is familiar to me in Florida specimens, was identical on Japanese animals.

As a result of its wide distribution (and poor communication between early malacologists), *Cymatium parthenopeum* has been named by many scientists and from many localities, giving it a long list of synonymous names. Some are *parthenopeum* (from the Greek name for Naples, Italy), *costatum* (from South Africa), *australasiae*, *americanum*, *brasilianum*, and *echo* (from Japan).

Another mollusk with even greater distribution is the edible mussel, *Mytilus edulis* (Linne, 1758). Because it can survive in colder water, it is found in an even wider range than a warm-water species, and it is truly found world-wide. I have collected it on beaches in Long Island, British Columbia, and Japan.

Sometimes the shells living at great distances from each other differ only slightly, giving rise to subspecies names such as *Cymatium rubeculum* subspecies *occidentale* (meaning western). In some cases the subspecific name may not really be justified.

### Here We Come to Save the Day

Because of the dispersal of some species through the ocean currents, mollusks that have become depleted in some areas are able to repopulate when man leaves them alone. Thus the recent ban on taking the Queen Conch, *Strombus gigas* Linne, 1758 in Florida — dearly loved for food and for its beautiful shell — has given the animal time to reestablish itself in areas of the Florida Keys where it was virtually nonexistent only a few years ago. I recently counted over 70 fully adult specimens in a 10-minute tow behind the boat off Key West.

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### FRENCH SHELL SHOW

January 26 and 27, 1991 will see the third French International Shell Show, from 9 a.m. to 6 p.m. at the Vincennes Town Hall, 53bis, Rue de Fontenay, 94300 Vincennes, France. Vincennes is very close to Paris and can easily be reached by underground and R.E.R. Lunch will be provided. For more information, write Association Francaise de Conchyliologie, 1, impasse Guemenee, 75004, Paris, FRANCE.

## COMING ATTRACTIONS:

### LONG ISLAND 1991 — THE GOOD LIFE

The Good Life in Long Island 1991 can't miss! It's already shaping up as one of the greats in COA convention history. So make your own plans now to join us July 7-12, and not to miss a minute of the fun! We've already secured a fine agreement with USAir to fly you to Long Island, and are working on a contract with a **limousine service** to get you to the 1991 convention site, the beautiful **Huntington Hilton** in Melville, New York. The **USAir** agreement will give you a **40% discount** on regular coach fare to Long Island's Islip/MacArthur Airport, and a **5% discount** off any published promotional round trip coach fare (that includes SuperSaver fare) — mention **Gold File No. 365802** when you or your travel agent book the flight.

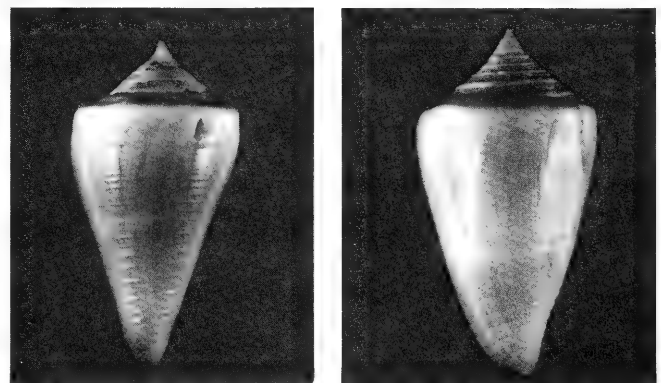
Special convention room rates at the Hilton start at \$95 a night, single or double, a **great bargain for Long Island**. And to further sweeten the pot, everyone registered at the Huntington Hotel for five nights or more will be eligible for a **raffle** of a **complimentary (read that as free) seven-night stay!**

**Auction Chairman Sol Weiss** tells us that super donations are already coming in for the **1991 Auction**. This exciting event, slated for Tuesday evening, July 9, is **COA's** major fund-raising event, so plan your contributions now and send them soon to Sol at 2562 Ramona Street, East Meadow, NY 11554.

We've added another field trip to the exciting schedule we reported in September: a Friday post-bourse bus trip to **Sagmore Hill, home of President Theodore Roosevelt**, where we will have lunch, tour the home and museum, and even get down to the water of Long Island Sound. Already slated for Wednesday are a shell collecting trip to **Orient Point State Park** on the north-eastern tip of Long Island, a tour of **Pindar Vineyards**, Long Island's largest winery, and a possible **dinner cruise** on Long Island Sound.

Add this to an exciting and innovative program line-up, the sales and raffles, the bourse, the banquet, and all the fun, fellowship, and shell talk, and you already know that the **Good Life in Long Island** is one slice of life you won't want to miss!

**Walter E. Sage III, 1991 Convention Co-Chairman**



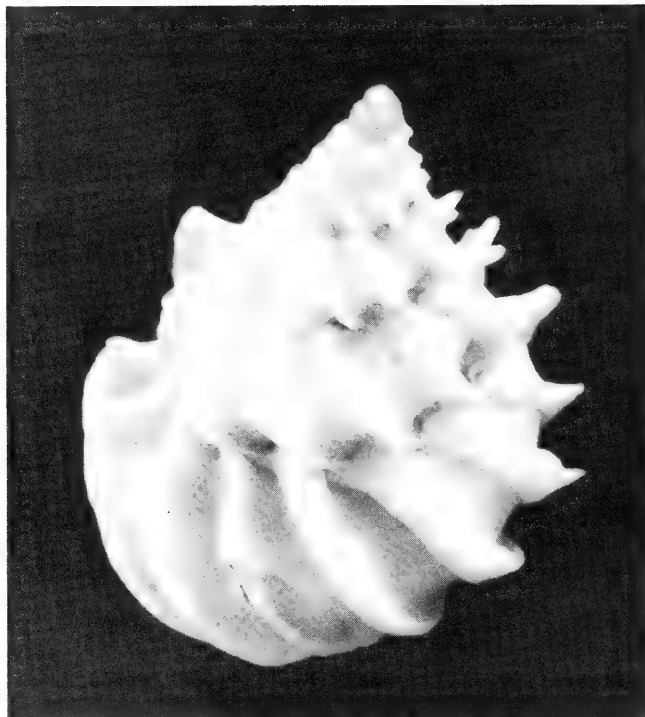
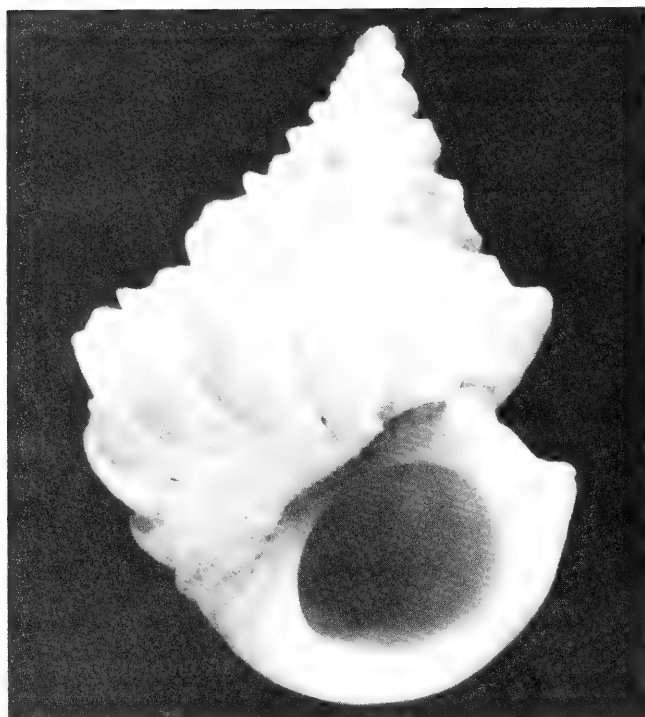
Left: *Conus penchaszadehi* Petuch, 1986 Right: *Conus caribbaeus* Clench, 1942.

### OOPS!

Two captions in Kevan Sunderland's September feature, "Caribbean Conidae," were accidentally switched. *Conus penchaszadehi* and *C. caribbaeus* are as appears above. Our apologies to Kevan and to cone fanciers everywhere.

The correct total for the 1990 COA Auction was \$5918, not \$5018, as reported in the September **American Conchologist**.

In Walter Sage's September "Contemporary Conchology", p.19, we neglected to mention that COA member Richard E. Petit is the author of "Catalogue of the superfamily Cancellarioidea Forbes and Hanley, 1851 (Gastropoda: Prosobranchia)," the first supplement to be published by The Nautilus. Apologies and congratulations to you, Dick.



## RANGE EXTENSION FOR PRESENT DAY *STHENORYTIS TURBINUS* (DALL), AN UNCOMMON AND LOVELY EPITONIUM

by Vivienne B. Smith

In 1908, Dall described *Sthenorytis turbinus* from off Hood Islands in the Galapagos group. In 1912, Dall described a Pliocene fossil from Panama as *Sthenorytis toroense*, apparently forgetting that he had previously described the living shell as *turbinus*. According to Helen DuShane, the descriptions are identical, indicating that the Pliocene fossil is a synonym of *S. turbinus*.

In 1966, Helen DuShane reported 3 dead specimens of *S. turbinus*, in the Allan Hancock Foundation Collection, from:

1. Baja California, Mexico
2. San Pedro, Nolasco Is., Gulf of California
3. San Jaime Bank, Lower California

This data indicates a range extension of 2450 miles from the Galapagos.

16631 Porto Bello Street NW, Bokeelia, FL 33922

Helen DuShane also reports that the only live specimens have come from the Galapagos Islands, and have been dredged in 170 to 200 meters of water by Jacqueline and Andre De Roy.

Thus you can see how exciting it was for me to obtain a live-taken specimen of *S. turbinus* from James Ernest, which was dredged in Panama, in water 320 feet deep, outside of Canal de Afuera Island. It was collected live, but the operculum was lost. The reflective costae make this species fairly easy to identify. My specimen has 12 costae, and is 41.5mm high, 32 mm wide.

\* Look for more about this species in the March issue.

### REFERENCES:

- Dall, 1912. New species of fossil shells from Panama and Costa Rica, collected by D. F. MacDonald. Smithsonian Institut. Mics. Coll. 59 (2) (2077): 1-10.  
DuShane, 1966. A rare Epitonium from the Gulf of California, Veliger, 8(4): 311-312.  
——, 1974. The Panamic-Galapagan Epitoniidae, Supplement to the Veliger, 16:45-47.

**THIS WILL BE YOUR LAST ISSUE UNLESS  
YOU HAVE PAID YOU 1991 DUES**

### FLORIDA SALTWATER FISHING LICENSE

Don't forget, if you're planning to collect live shells in Florida, that you must have a license. Florida residents who are wading in water less than 4' deep directly from shore **do not** have to have a license; if you have reached your shelling spot by boat or are snorkeling at any depth, you **must** have a license. If you are under 16 years old, or if you are over 65 years old and have a valid Florida driver's license or voter registration card, you **do not** have to have a license. Licenses are \$14 for residents. Non-residents may get a 7-day license or a 1-year license. Many tackle stores and tax collectors' offices sell the license. (Reprinted from the Sarasota Shell Club Newsletter)

### COA CHARTER MEMBER CELEBRATES CENTENNIAL

Congratulations are in order for COA member Rev. Richard Breitigam of Santa Barbara, who celebrated his 100th birthday on August 27, 1990. Rev. Breitigam remains active, enjoying many interests, including an extensive seashell collection. His career as a missionary included several years in South America, the Panama Canal Zone, Mexico, and Cuba, and official duties in the Seventh Day Adventist Church in southern California. An article in the Santa Barbara News-Press highlighted his life, and I'm told that part of his birthday celebration was an automobile outing with a friend age 101! Rev. Breitigam continues his interest in seashells, and has already mailed in his 1991 COA membership dues. We salute him and wish him well in this very special year.

— WALTER SAGE

## CONTEMPORARY CONCHOLOGY

by Walter Sage

American Museum of Natural History

The September 1990 issue of *The Nautilus* has two articles of particular interest to collectors. The first is a review of the little known cerithiid genus *Colina* H. & A. Adams, 1854 by Richard S. Houbbrick of the Smithsonian. Three species are recognized — *Colina macrostoma* (Hinds, 1844), from the Indo-West-Pacific; *C. pinguis* (A. Adams, 1854) Indian Ocean; and *C. selecta* Melvill & Standen, 1898, India. The second article, by Edward J. Petuch, introduces a new subregion of the Caribbean molluscan province, the Blasian subregion, and lists some of the larger gastropods found in this area. The following are described as new to science: *Turritella marianopsis*, *Chicoreus hilli*, *Dermomurex* (*Trialatella*) *cuna*, *Murex rubidus panamicus*, *Murexiella edwardpauli*, *Latirus cuna*, *Mitra* (*Nebularia*) *leonardi*, *Oliva* (*Strephona*) *reticularis ernesti*, *Prunum leonardhilli*, *Voluta lacertina*, *Falsilyria ernesti*, *Conus brunneofilaris*, *C. ernesti*, *C. granarius panamicus*\*, *C. hilli*, *C. portobeloensis*, *C. rosemaryae*, *Fusiturricula sunderlandi*, and *Knefastia hilli*.

The April-June 1990 issue of *La Conchiglia* has descriptions of the following new taxa: *Conus punctulatus cardonensis* Vink, Venezuela; *Distorsio muelhaeusseri* Parth, Somalia; *Bullata lizei* Clover, Yucatan; *Marginella senegalensis* Clover, Senegal; *Zoila* (*Zoila*) *jeaniana sherylae* L. R. Massilia, Western Australia; *Conus roseorapum* G. Raybaudi & Da Motta, Philippines; *C. veillardii* da Motta, western Indian Ocean; *Dentamussium* Dijkstra (new subgenus of *Amusium*); and *Crenavolva* (*Serrativolva*) *imitabilis gabrielae* Nicolay & Biraghi, Somalia.

The September 1990 number of *Tulane Studies in Geology and Paleontology* contains the following paper — Cenozoic Muricidae of the Western Atlantic Region Part VIII — *Murex* s.s., *Haustellum*, *Chicoreus*, and *Hexaplex*; additions and corrections by Emily H. Vokes. Nine fossil muricids are described as new to science, among them *Chicoreus* (*Phyllonotus*) *louisae*, from the Chipola Formation, northwestern Florida, named for Georgia COA member Louise Compton. Congratulations, Louise!

\*Note that *Conus granarius panamicus* Petuch is a new name for several cones illustrated in the September *American Conchologist* color plate of *Conus cedonulli* and its forms, page 6, by Richard Goldberg. They are numbers 17a & b, and 22a, b & c.

## ANOTHER BAD APPLE

Thanks to the sharp eye of Walter Sage for the following bit of history, copied from the *Proceedings of the Malacological Society of London*, Volume 8: Ordinary Meeting, Friday April 10, 1908, B.B. Woodward, F.L.S., President, in the chair.

The President drew the attention of the members to a communication which had been received from Copenhagen, signed by a number of conchologists of that city, who request that it might be published in the *Proceedings* of the Society. This communication was practically an English translation of an article entitled, "Ein malakologischer Schwindel," which had already appeared in the *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft* (1907, Heft iii, pp.169-172) and in the *Verhandlungen der k.k. zoologisch-botanischen Gesellschaft in Wien* (107, pp.275-277).

This article refers to the alleged malpractices of a certain youth, Hans Schlesch, of Copenhagen. The members of the society were therefore advised to acquaint themselves with the contents of the article in question before having any dealings with the person referred to.

## ABALONES AND THE [CALIFORNIA] EARTHQUAKE [OF 1906]

Dr. R. Tucker Abbott sent us the following timely tale reprinted here from April 1907's *The Nautilus* 20(12):135-136:

The Japanese abalone fisherman who have made their headquarters at Carmel Bay, a few miles south of Monterey, had planned to extend their operations to the more southerly part of the coast, on the shore of San Luis Obispo County. This was in August. Upon examination later on of the rocky region near Morro, where they expected to make a great haul, it was found that the sea-bed was coated with a greasy slime of a supposed bituminous character, which had killed the abalones. Abalones were found in abundance for miles along the shore, so it was reported, but all dead. As the "meats," as the dried soft parts are called, constitute the chief profit of the fishery, no doubt the Japanese were disappointed.

The earthquake of April 18th, which was felt very slightly at Morro, was credited with the killing, though it may have been caused by some subsequent disturbance. The abalones that occur along this part of the shore belong principally to the species *Haliotis rufescens* and *H. cracherodii*. . . .

AND. . .

## CLAMS AND THE [CALIFORNIA] EARTHQUAKE [1906]

from April 1908's *The Nautilus* 21(12):141-142:

. . . "Abalones and the Earthquake" . . . contained all that I had been able to learn up to the preceding February, of the effect of the earthquake of April 18th, 1906, upon the marine life of the coast. . . Recently the Indians and the Spanish population about Marshall's and Tomales Bay, who for several years have been engaged in supplying the local "clam" *Paphia staminea* Conr [ad]. . . for the San Francisco market, have been, it is so reported, thrown out of employment, the bay having become so shallow as to preclude the use of boats, and clam-diggers state that since the great earthquake no clams have been found there. In many instances these toilers of the clam banks have been reduced to poverty.

In and around Tomales Bay which is about fifty miles north of the entrance to the Bay of San Francisco, the quake was far more severe than at the southerly abalone locality mentioned. . . [and] the only notable water waves generated by the shock were in Tomales Bay where a group of waves estimated to be 6 or 8 feet high, came to the northeastern shore. The mud which forms the bed of the bay, was shifted and ridged and more or less horizontal displacement occurred as well as a marked shallowing of the waters. . . .

## AMU 1991 — PUT IT ON YOUR CALENDAR NOW!

The AMU Annual Meeting and the WSM Annual Meeting will be combined, as is the custom on alternate years, and held in Berkeley June 30 — July 5 1991. Hosted by the University of California Museum of Paleontology, the event will be held on the U.C. Clark Kerr Campus at the Conference Center. Attendees need not be a member of either organization.

Symposia will feature bivalves, molluscan biogeography and molluscan taphonomy. Special added events will include a reception hosted by the Museum of Paleontology and open houses at UCMP and the California Academy of Sciences. Field trips will range from the Bodega Marine Laboratory to wine-tasting in the Napa Valley.

For more information, call AMU President Carole Hickman (415) 642-3429, or WSM President Paul Scott (805) 682-4711.



## WANDERINGS OF AN ITINERANT MALACOLOGIST VII Maria Madre Island, Mexico's Maximum Security Prison

by Donald R. Shasky, M.D.

November 7, 1961. The decks were jammed with people, all stretched out for the night's cruise from Mazatlan, Mexico to Maria Madre Island.

The largest of the Tres Marias group, Maria Madre Island lies approximately 90 miles south of Mazatlan, Sinaloa, and 70 miles W. NW. of San Blas, Nayarit. Because it has been a penal colony for many years, it is infrequently visited by scientific parties. It is Mexico's maximum security prison. Twice a month a Mexican destroyer sails from Mazatlan at 8:00 p.m., and arrives at Maria Madre about 8:00 a.m. the next day. After twelve hours in port it returns to Mazatlan. On board are prisoners, guards, other prison personnel, as well as families of guards and prisoners, and supplies of all sorts. On November 7, Twyla Bratcher, my ex-wife Ruth and I were also on board.

Getting permission to go there, and to collect shells, is a story in itself, since permission had to come from two different men. First I had to receive the approval of the commander of the naval district, a relatively easy task: my friend, Captain Xavier Mendoza (See *American Conchologist* Vol. 18, No. 1, p.20, "Down to the Sea in Shrimp Boats"), a graduate of the Naval Academy in Mazatlan, took care of that for us. The tough part was getting permission to land on the island from the warden, Army General Pedraco. After a great deal of frustration, but with our continued persistence, we persuaded him to relent.

That night we staked out our claim to a bit of space on the second deck, lay down and tried to sleep. Before sleep came, someone dropped a flashlight on my head from above, on the third deck. People wandered around throughout the night, actually stepping over us at times. Some were trying to get to the rail to retch a while. The sea seemed calm to us, but the sounds of their retching told us that **their** bodies thought otherwise. Adding to this cacophony were the sounds of crying children and of parents trying to hush them.

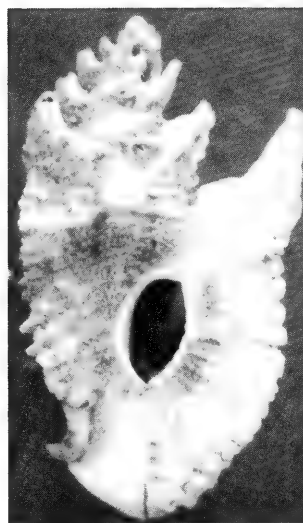
The next morning, on the pier of Maria Madre Island, after our captain and the warden carried out the formalities, everyone disembarked. The warden assigned us a bilingual prisoner, Pancho Valentino, to be our guard for the day. He also had his driver take us in his jeep to the spot that I had picked to dive.

After the long night, we were more than anxious to get into the water, so there wasn't much conversation between us and Pancho. After five continuous hours of snorkeling without a break, I finally swam ashore where Pancho was faithfully guarding our belongings.

Following some pleasantries, I put the inevitable question to him, "Pancho, what are you doing here?" His answer took a while. He recounted that he, as a young man, during World War II, had gone to the United States as an illegal immigrant to work in the fields. Eventually he had to register for the draft, was inducted, and served in Europe. On discharge, he became a professional wrestler, and wrestled in the U.S. and Europe.

Flush with money, he returned home to Mexico City. His old and new cronies quickly helped him spend his money. During the spending spree, he told them what a great place Europe was. After the money was gone, they started to scheme to get money so that they could all go off to Europe together, and robbery was the only solution they came up with. They discussed robbing various kinds of stores. One of them declared that all priests have money, so they plotted out when and where to waylay a padre. . . which they subsequently did. Pancho paused, and I asked him what happened. He said, "I got a little rough," meaning that he had murdered the priest in the scuffle.

I then inquired if he was a Catholic. Sticking his thumbs into his armpits and throwing out his chest, he boasted, "I am, a Meth-



*Tripterotyphis fayae* (Keen & Campbell, 1964)  
*Bailya anomala* (Hinds, 1844)

odist!" I also asked him what his duties were in the prison. He replied that he was the boxing and wrestling promoter.

Three years later, I had an opportunity to return to Maria Madre Island. The new warden was a civilian, Senor Enrique Catalan. I asked for Pancho to be our guard, and so we had a reunion. In Mexico, the maximum penalty for murder is 40 years. Pancho returns to civilization in the year 2000. If he is still alive, he will be released in ten more years.

This has been a long way around to write about shells, which we did find in abundance. Most of the taxa I found are common Panamic species. A couple of species were exciting. Under a very large rock in 10-15 feet, which I turned over only after planting both my feet on the bottom, were three very nice *Oliva porphyria* Linnaeus, 1758. At the time it was a thrill, but after collecting this species at other localities since, the thrill has paled.

*Tripterotyphis fayae* (Keen & Campbell, 1964) had just been described, and most, if not all, of the type lot were crabs. Since living material was not available to them, the authors postulated that the habitat was somewhat offshore. On turning an intertidal



General Pedraco's jeep. Left: General's chauffeur Right: Pancho Valentino.

rock, I found a living specimen on a soft, calcareous mass attached to the rock. We broke up the calcareous material, and found three more specimens. The specimen figured here is not from Maria Madre, though. It is, instead, from Bahia Costecoma, Jalisco, Mexico, from the same lot illustrated by Radwin and D'Attilio in their **Murex Shells of the World**, Plate 30, fig. 10.

Also of interest to me were four specimens of *Bailya anomala* (Hinds, 1844). This species is usually found on rocks or hard coral that is partially buried in mud. The illustrated specimen is

from Venado Island, Panama.

On the second trip, we were given bunks in the officers' quarters below deck, which was great — until our return to Mazatlan. We awoke to the smell of extremely acrid smoke from an electrical fire in the engine room. The ship stopped, and we drifted a while before the fire was extinguished and the problem repaired. The stench lasted all the way into port.

Next time Ecuatoriana Airlines, in jail in Guayaquil, and the Santa Elena Peninsula.

## HERMIT CRABS

by Carol Boswell

As shell collectors, we frequently run across shells that have been adopted as homes by hermit crabs. Some crabs are very large and some so small they can hardly be seen. As they grow larger, they discard the smaller shell for one a little larger.

Most other crabs get by nicely with their own hard shells, but the body of the hermit crab is only partially covered with hard shell. (It is more closely related to shrimp than crabs.) Its abdomen is bare and unprotected, so it must "cover its tail" by finding an empty shell and backing into it. Hermit crabs have also been known to live in man-made objects like small bottles.

Hermit crabs choose their shells on the basis of size, and many of the shells are so ugly only a hermit crab would want them, but they seem to have a knack of sometimes picking the very shell you'd like to have for your collection. Is there a way to take that shell without killing the crab? I once read an article by Peggy Williams, the very knowledgeable past president of COA and owner of Shell Elegant, explaining how you can remove the crab, find him a "new home" so he can survive, and keep his old home for your shell collection.

Here's what the article said to do: 1. Put crabbed shell in a closed ziplock bag. 2. Place in the sun near a tide pool into which you have placed an empty shell of similar size. 3. When the crab emerges, move the bag to the tide pool, open it up and let the crab out to find his cool new home.

Everybody goes home happy — right?

On a field trip to Cape Lookout, NC, I tried this method of removing crabs from shells. I meticulously followed each step detailed in Peggy's article. Unfortunately, the crab hadn't read it!

That morning had started off foggy and cool, but turned into a hot, humid SCORCHER! When I realized a shell I had collected was occupied, I decided to give Peggy's method a whirl. With the crabbed shell in the bag near a tide pool, we sat. And sat. And sat.

As the sweat poured off me, the crab withdrew even deeper into the shell. After 45 minutes of this standoff and fearing I'd have a heatstroke to save a crab, I called it a draw, took us both to the cool tide pool, and we went our separate ways.

A friend visiting the Bahamas had lined up some beautiful empty shells outside the cottage one night to day. Next morning she was shocked to see her empty shells marching back to the water. The hermits had left their old, ugly shells for her, and headed out to sea with her finds.

Another friend, on a trip to Eleuthera made it a practice to set out the ugliest shells imaginable in front of her apartment, in hopes that the crabs would swap some goodies for her garbage. She said she had acquired some great shells this way.

Oh — if you find a shell with a hermit crab in residence, just put him in some fresh water over night. And be sure you want the shell bad enough to kill the crab.

## THIS WILL BE YOUR LAST ISSUE UNLESS YOU HAVE PAID YOU 1991 DUES

### 1991 WINTER AND SPRING SHELL SHOWS AND OTHER EVENTS

by Donald Dan, COA Trophy Chairman

Twelve shell events have been slated in the U.S.A. during the first six months of 1991, two less than we had last year. We welcome the return of the Broward (Ft. Lauderdale) show after a one year absence for exhibition hall renovation. Also returning is the Palm Beach Shell Show. Unable to locate a suitable exhibition hall, the Ft. Myers show will again be absent in 1991. Astronaut Trail Shell Club is taking a much-needed rest after hosting the 1990 COA Convention.

The biennial Sheller's Jamboree held by the Suncoast Conchologists will take place in 1991. Everyone seemed to have great fun at this event two years ago. The host club is already hard at work to repeat their tremendous success.

- |            |  |
|------------|--|
| Jan. 18-20 | <b>Greater Miami Shell Show</b> , N. Miami, FL<br>Gayle Motes, 7305 N.W. 59 Street<br>Tamarac, FL 33321 ..... (305) 726-5190   |
| Feb. 1-3   | <b>Broward Shell Show</b> , Pompano Beach, FL<br>Richard Sedlak, 4371 SW 11th Street<br>Plantation, FL 33317 ..... (305) 584-9283  |
| Feb. 15-17 | <b>Sarasota Shell Show</b> , Sarasota, FL<br>Dick Forbush, 1104 Sklar Drive East<br>Venice, FL 33539 ..... (813) 497-4312  |
| Feb. 22-24 | <b>Naples Shell Show</b> , Naples, FL<br>Anna V. Szent-Kirallyi ..... (813) 597-6115<br>Gloria Murphy, P.O. Box 1991<br>Naples, FL 33939 ..... (813) 649-7308                                  |
| Feb. 22-24 | <b>St. Petersburg Shell Show</b> , Treasure Island, FL<br>Betty and Bob Lipe, 440 75th Avenue<br>St. Petersburg Beach, FL 33706 ..... (813) 360-0586   |
| Mar. 7-10  | <b>Sanibel Shell Fair</b> , Sanibel, FL<br>Anne Joffe, 1163 Kittiwake Circle<br>Sanibel, FL 33957 ..... (813) 472-3151   |
| Mar. 7-10  | <b>Palm Beach Shell Show</b> , West Palm Beach FL<br>John Spengler, 614 W. Bloxham Street<br>Lantana, FL 33462 ..... (813) 586-4963  |
| Mar. 14-16 | <b>Marco Island Shell Show XI</b> , Marco Island, FL<br>Joan & Robert Scribner, 1012 S. Collier, #112<br>Marco Island, FL 33937 ..... (813) 394-0399   |
| Mar. 15-17 | <b>Treasure Coast Shell Show</b> , Stuart, FL<br>Ted Jacaruso, 1964 NW Pine Tree Way<br>Stuart, FL 34994 ..... (407) 692-0270  |
| Mar. 22-24 | <b>Central Florida Shell Show</b> , Orlando, FL<br>Jake Dominey, 700 Tam O'Shanter Drive<br>Orlando, FL 32803 ..... (407) 894-3033   |
| Apr. 5-7   | <b>Georgia Shell Show</b> , Atlanta, GA.<br>Kenneth White, 2587 Ballew Court<br>Marietta, GA 30062 ..... (404) 977-0858  |
| May 25-26  | <b>Suncoast Conchologists Shellers' Jamboree</b><br>Clearwater, FL<br>Joan Pearson, 11710 Parkview Lane<br>Seminole, FL 34642 ..... (813) 397-7610<br>or Carolyn Petrikin ..... (813) 796-4117 |
| June 22-23 | <b>10eme Salon International du Coquillage</b><br>Dr. Ted Baer<br>Ch-1602 La Croix<br>Switzerland ..... (21) 393-771 or 207-371  |

## RECENTLY INTRODUCED NAMES IN THE FAMILY CONIDE PART 2

by Walter E. Sage III

This is the second half of my listing of new taxa in the Conidae which have been described from January 1, 1977 to August 1, 1990. Part 1 appeared in the *American Conchologist* Vol. 18, No. 3, P. 16-17. After the alphabetical listing is an addendum of Conidae described between August 1, 1990 and November 1, 1990. The purpose of this note is merely to call to the attention of those interested in cones the existence of these names and to give a brief citation of the publication in which these names were validly introduced or which names represent valid species. I have personally examined each publication cited, and believe this listing to be complete.

Those names preceded by an asterisk represent western Atlantic species. The type locality for these taxa only follows these names in parentheses.

- macilentus Lauer, 1989 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 14, p.20
- magister Doiteau, 1981 — *Rossiniana* 13, p.3
- \*magnotei Petuch, 1987 — *New Caribbean Molluscan Faunas*, p.75 (Honduras)
- messiasi Rolan & Fernandes in Rolan, 1990 — *Iberus*, suppl.2, p.17
- meyerii Walls, 1979 — *The Pariah* 5, p.3
- miruchae Roeckel, Rolan & Monteiro, 1980 — *Cone Shells from Cape Verde Islands*, p.89
- montillai Roeckel, 1985 — *Heldia* 1(2), p.61
- mordeirae Rolan & Trovao in Rolan, 1990 — *Iberus*, suppl.2, p.25
- mozoi Melvin, 1980 — *1000 World Sea Shells, Rare to Common*, with Values, p.27
- nahoniraensis daMotta, 1986 — *La Conchiglia* 18(210-211), p.20
- navarroi Rolan, 1986 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 6, p.3
- negroides "Paes da Franca" Kaicher, 1977 Kaicher, 1977 — *Card Catalogue of World-wide Shells, Pack 13, Conidae III*, card 1313
- neotorquatus daMotta, 1985 — *La Conchiglia* 17(190-191), p.27
- neovicarius daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.4
- neris Petuch, 1979 — *Nemouria* 23, p.18
- nigrostriatus Kosuge, 1979 — *Bulletin Institute of Malacology Tokyo* 1(2), p.21
- nipponicus daMotta, 1985 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 4, p.2
- nivalis daMotta, 1985 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 4, p.2
- oishii Shikama, 1977 — *Science Reports Yokohama National University* 24, p.22
- orri Ninomiya & daMotta in daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.15
- \*pacei Petuch, 1987 — *New Caribbean Molluscan Faunas*, p.55 (Bahamas)
- papueus Coomans & Moolenbeek, 1982 — *Bulletin Zoologisch Museum Universiteit van Amsterdam* 8(15), p.133
- paradiseus Shikama, 1977 — *Science Reports Yokohama National University*, 24, p.20
- \*paraguana Petuch, 1987 — *New Caribbean Molluscan Faunas*, p.111 (Venezuela)
- \*parascalaris Petuch, 1987 — *New Caribbean Molluscan Faunas*, p.112 (Venezuela)
- parvatus Walls, 1979 — *The Pariah* 5, p.4
- pascuensis Rehder, 1980 — *Smithsonian Contributions to Zoology* 289, p.91
- \*patglicksteinae Petuch, 1987 — *New Caribbean Molluscan Faunas*, p.30 (Florida)
- patonganus daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.7
- \*paulae Petuch, 1988 — *Neogene History of Tropical American Mollusks*, p.159 (Venezuela)
- \*penchaszadehi Petuch, 1986 — *Proceedings of the Biological Society of Washington* 99(1), p.10 (Colombia)
- \*perprotractus Petuch, 1987 — *New Caribbean Molluscan Faunas*, p.112 (Venezuela)
- phuketensis daMotta, 1978 — *The Centre of Thai Natural Study*, suppl., p.4
- pineau Pin & Leung Tack, in press — *Bull. Mus. Natn. Hist. Nat.* ? [not yet seen]
- plinthis Richard & Moolenbeek, 1988 — *Venus* 47(4), p.235
- polongimarumai Kosuge, 1980 — *Bulletin Institute of Malacology Tokyo* 1(4), p.63
- pongo Shikama & Oishi in Shikama, 1977 — *Science Reports Yokohama National University* 24, p.21
- poppei Elsen, 1983 — *Informations de la Societe Belge de Malacologie* 11(4), p.185
- potusmarumai Kosuge, 1980 — *Bulletin Institute of Malacology Tokyo* 1(5), p.81
- poumensis Prigent, 1985 — *Rossiniana* 29, p.22
- primus Roeckel & Korn, 1990 — *Acta Conchyliorum* 2, p.45
- \*pseudaurantius Vink & von Cosel, 1985 — *Revue Suisse de Zoologie* 92(3), p.544 (Lesser Antilles)



*Conus primus* Roeckel & Korn, 1990 — A new species of cone dredged in 80m by Soviet trawlers off the coast of Somalia in the Indian Ocean. The 85mm shell has a white ground with a bright orange-golden pattern accented by white tent markings. (Photo from the cover of *La Conchiglia* 242-245 [May-August 1989])

- pseudocoelinae Delsaerd, 1989 — *Gloria Maris* 28(1), p.6
- pseudocuneolus Roeckel, Rolan & Monteiro, 1980 — *Cone Shells from Cape Verde Islands*, p.117
- pseudokimioi daMotta & Martin, 1982 — *Carfel Philippine Shell News* 4(3), p.9
- pseudorbignyi Roeckel & Lan, 1981 — *Bulletin of Malacology Republic of China* 8, p.15
- pseudoventricosus Roeckel, Rolan & Monteiro, 1980 — *Cone Shells from Cape Verde Islands*, p.83
- pupillaris daMotta, 1982 — *La Conchiglia* 14(158-159), p.21
- purpuratus Shikama, 1979 — *Science Report Yokosuka City Museum* 26, p.2
- quasimagnificus daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.3
- queenslandis daMotta, 1984 — *La Conchiglia* 16 (178-179), p.25
- \*rachelae Petuch, 1988 — *Neogene History of Tropical American Mollusks*, p.159 (Venezuela)
- ramalhoi Coomans, Moolenbeek & Wils, 1986 — *Basteria* 50(4-6), p.103
- ranonganus daMotta, 1977 — *Hawaiian Shell News* 25(5), p.5
- rawiensis daMotta, 1978 — *The Centre of Thai Natural Study*, suppl., p.8
- reductaspiralis Walls, 1979 — *The Pariah* 5, p.5
- regonae Rolan & Trovao in Rolan, 1990 — *Iberus*, suppl.2, p.31
- richeri Richard & Moolenbeek, 1988 — *Venus* 47(4), p.233
- \*riosi Petuch, 1986 — *Proceedings of the Biological Society of Washington* 99(1), p.10 (Brasil)
- roekeli Rolan, 1980 — *Bolletino Malacologico* 16(3-4), p.82
- rogmartini daMotta, 1982 — *Carfel Philippine Shell News* 4(2), p.3
- rolani Roeckel, 1986 — *Spixiana* 9(3), p.234
- rubropennatus daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.6
- \*sahlbergi daMotta & Harland, 1986 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 6, p.19 (Bahamas)
- salreensis Rolan, 1980 — *Bolletino Malacologico* 16(3-4), p.84
- samiae daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.12
- \*sanctaeamathae Vink, 1977 — *Zoologische Mededelingen* 51(5), p.91 (Colombia)
- \*sanderi Wils & Moolenbeek, 1979 — *Bijdragen tot Dierkunde* 49(2), p.255 (Barbados)
- sandwichensis Walls, 1978 — *The Pariah* 2, p.3
- saragase Rolan, 1986 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 6, p.7
- scalarissimus daMotta, 1988 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 11, p.47
- sculpturatus Roeckel & daMotta, 1986 — *Heldia* 1(4), p.133
- serranegrae Rolan, 1990 — *Iberus*, suppl.2, p.49
- sertacinctus Roeckel, 1986 — *Archiv fur Molluskenkunde* 116(4-6), p.226
- sharmiensis Wils, 1986 — *Gloria Maris* 25(5-6), p.189
- shikamai Coomans, Moolenbeek & Wils, 1985 — *Basteria* 48(6), p.233
- skinneri daMotta, 1982 — *Publicacoes Ocasioneis da Sociedade Portuguesa de Malacologia* 1, p.8
- soaresi Trovao, 1978 — *Centro Portugues de Actividades Subaquaticas* 4(4), p.9
- \*sorenseni Sander, 1982 — *The Veliger* 24(4), p.319 (Barbados)
- subfloridus daMotta, 1985 — *La Conchiglia* 17(190-191), p.27
- sukhadwalai Roeckel & daMotta, 1983 — *Archiv fuer Molluskenkunde* 114(1-3), p.2

\*Department of Invertebrates, American Museum of Natural History, New York, NY 10024

sulcocastaneus Kosuge, 1981 — Bulletin Institute of Malacology Tokyo 1(6), p.99  
 suluensis Shikama, 1979 — Science Report Yokosuka City Museum 26, p.3  
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 suzannae van Rossum, 1990 — La Conchiglia 22(250-252), p.29  
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 \*tostesi Petuch, 1986 — Proceedings of the Biological Society of Washington 99(1), p.11 (Brasil)  
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 \*tristensis Petuch, 1987 — New Caribbean Molluscan Faunas, p.113 (Venezuela)  
 tropicensis Coomans & Filmer, 1985 — Beaufortia 35(1), p.11  
 turritinus daMotta, 1985 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 4, p.1  
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 tuticorinensis Roeckel & Korn, 1990 — Archiv fur Molluskenkunde 119(4-6), p.279  
 \*venezuelanus Petuch, 1987 — New Caribbean Molluscan Faunas, p.113 (Venezuela)  
 verdensis Trovao, 1979 — Amphitrite 1, p.5  
 vicdani Kosuge, 1980 — Bulletin Institute of Malacology Tokyo 1(4), p.62  
 vicdani Lan, 1978 — Bulletin of Malacology Republic of China 5, p.66  
 viola Cernohorsky, 1977 — The Nautilus 91(2), p.72  
 viperinus Lauer, 1986 — La Conchiglia 18(212-213), p.28  
 visseri Delsaerdt, 1990 — Gloria Maris 29(1), p.1  
 whiteheadae daMotta, 1985 — La Conchiglia 17(190-191), p.26  
 wittigi Walls, 1977 — The Pariah 1, p.1  
 \*xanthocinctus Petuch, 1986 — Proceedings of the Biological Society of Washington 99(1), p.13 (Brasil)

xicoi Roeckel, 1987 — Publicacoes Ocasionalis da Sociedade Portuguesa de Malacologia 9, p.45  
 zapatosensis Roeckel, 1987 — Spixiana 10(3), p.288  
 zukiae Shikama, 1979 — Science Report Yokosuka City Museum 26, p.3  
 zulu Petuch 1979 — Nemouria 23, p.19

### New species of Conidae — descriptions received after August 1, 1990.

\*brunneofilaris Petuch, 1990 — Nautilus 104(2), p. 66 (Caribbean Panama)  
 \*cardonensis Vink, 1990 (puncticulatus ssp.) — La Conchiglia 22 (253-255), p. 16 (Venezuela)  
 \*ernesti Petuch, 1990 — Nautilus 104 (2), p.67 (Caribbean Panama)  
 \*hilli Petuch, 1990 — Nautilus 104(2), p. 68 (Caribbean Panama)  
 \*panamicus Petuch, 1990 (granarius ssp.) — Nautilus 104 (2), p. 67 (Caribbean Panama)  
 \*portobeloensis Petuch, 1990 — Nautilus 104(2), p. 68 (Caribbean Panama)  
 \*rosemaryae Petuch, 1990 — Nautilus 104(2), p. 68 (Caribbean Panama)  
 roseorapum G. Raybaudi & da Motta, 1990 — La Conchiglia 22(253-255), p. 41  
 veillardii da Motta, 1990 — La Conchiglia 22(253-255), p. 44

Perhaps this is the proper place to repeat the following paragraph from Coomans, et al. 1982 (Alphabetical Revision of the [sub]species in recent Conidae 5, *Basteria* 46:3-67): "The constant flow of "new species" in the Conidae is still going on, often more to the benefit of the authors than to science. Descriptions are found in both respected and obscure journals, often without proper research in the literature or comparative studies, sometimes based on single specimens, with a dubious locality, and the type stored in a private collection. Some authors do not realize that already more than two thousand *Conus* names are available."

## NOTHING NEW UNDER THE SUN?

### SURE THERE IS! THE COA SEMINAR!

For some time, COA members have been voicing interest in "seminar sessions" — presentations devoted to a particular topic that would allow for interaction among those attending the sessions. To address these requests COA 1991 will introduce special concurrent sessions, scheduled for Thursday, July 11. We will divide our meeting room into two smaller rooms, and conduct two hour-long presentations simultaneously. Under the coordination of Bev Deynzer, the leader of each session will determine the format of his session in a way that allows individual participation among attendees.

The following topics are under consideration for the three concurrent sessions (6 presentations in all) scheduled for 1991: History of Conchology; Stamps, Coins and Collectibles; Conidae; Caribbean Shells and Shelling; Fossils and Fossiling; and Bivalves. Registrants will select the three presentations they wish to attend (one for each session) on the convention registration form when it arrives in the March *American Conchologist*.

With such great topics, the choices will be tough ones, but life's full of choices, so let's all do some preliminary thinking on which topics we'll elect. Early registration provides important information for scheduling, and enables the presentation leaders to better plan audience involvement. And it gets us started thinking about what we'd like to get out of each topic, and perhaps what we'd like to contribute. Remember that it will take our participation and our contributions of information and ideas to make these seminars a success. Try it! You'll like it!!

—Walter E. Sage III, 1991 Convention Co-Chairman

## BOOK REVIEW NIGHT

Stuck for a program for your club next month? Try a Book Review Night. The Pacific Northwest Shell Club offers an entire evening of shell book reviews by various members. Everyone benefits. The reviewers take a closer and more critical look at their favorites, and the audience learns more about the available literature.

### RUDI BIELER GOES TO CHICAGO

Dr. Rudiger Bieler, malacology curator for the past two years at the Delaware Museum of Natural History and more recently serving as Acting Director for that museum, has moved to the Field Museum of Natural History at Chicago. He now heads the Division of Invertebrates at the Field Museum, a position vacated by Dr. Solem's untimely death last February.

Dr. Bieler's new address and also the new editorial office for *Monographs of Marine Mollusca* will be: Division of Invertebrates, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, Illinois 60605.

An international search is underway to refill the malacology position at the Delaware Museum.



"*Murex rex*; unique specimen found on the island of Phuket, southern Thailand. I was going to collect this little critter, but realized it probably wouldn't fit in my carry-on luggage!" Photo, courtesy of Dr. Emily Vokes, of World Record Murex and Mr. Douglas Watkins, a Tulane Geology alum working in Saudi Arabia for Texaco/Aramco Oil, was taken during Mr. Watkins' R&R in Phuket.



## OUR COA CLUBS — A CLOSER LOOK

### The San Antonio Shell Club

The San Antonio Shell Club was started in 1955 by Laura Gilbert, a school teacher who was interested in the sciences and anything pertaining to the sea. She was a very generous lady who shared her knowledge and her shells with anyone who showed interest in the subject. She lived to be almost 100 years old, so her influence and contributions touched many people and several generations.

Although they may be one of COA's smaller clubs (about 47 members), they still have made their influence felt beyond the confines of their meeting place. For example, they are not affiliated with any museum, but they have helped the Witte Museum to set up shell exhibits and they have donated shells for such use. Members have also put an exhibit in the Chamber of Commerce at Aransas Pass on the coast. When requested, they give talks to school children and to other clubs interested in seashells.

Most notably, the San Antonio Shell Club worked for six years to help get a state shell for Texas in recognition of Texas' coastal resources. Eventually, in April, 1987, legislation was signed making *Busycon perversum pulleyi* Hollister, 1958 the official state shell of Texas. This species was named in honor of Dr. T. F. Pulley, Texas naturalist and teacher, and its range extends from Louisiana to northern Mexico, thus covering the entire coastline of Texas.

Meetings are held at 7:30 p.m. on the third Tuesday of each month from September through May in the Fellowship Hall of the Asbury United Methodist Church, 4601 San Pedro Avenue. Yearly dues are \$5.00 for adults and \$1.00 for those under 18. Anyone visiting the area may feel free to call (512) 824-7146 for information, and to attend a meeting; you'll be most welcome.

The club has held shell shows, but none recently; they do, however, participate in other shell shows. The club also hosted the AMU when it met in San Antonio, and they have co-hosted other Texas AMU Meetings.

Some club members are interested in diving, so the club takes trips to the seashore, roughly a couple of hundred miles away. Others are interested in fossils, so they have fossil trips. Renford Taylor, their resident fossil expert, can make available a list of cretaceous fossils found in the San Antonio area.

The San Antonio Shell Club lost all of their files, scrap books, collection of newsletters, and library books recently when there was a fire at the Asbury Church. All of their club's roots were obliterated in an instant. They are especially distressed at losing their copy of *Johnsonia*, edited by Dr. William Clench, a rare book donated to their club by Dr. R. Tucker Abbott.

The club may be "down," but it is not "out"! By bringing shells to their "show and tell" meeting once a year and through interested friends, they are making some extra money and are using it to rebuild their library. We wish them good fortune.

—Nancy Gilfillan

### News for Scallop Fans from the New York Times

10/3/90 — Long Island Scallops are relatively abundant this year after several years of devastation by the mysterious algal bloom that turns the bay water brown.

The sweet nuggets of scallops are in season and are available at seafood markets mainly on eastern Long Island. They are expensive — \$16 to \$20 a pound for shucked scallops.

In recent days bay scallops from many other sources have arrived, offering choices at a range of prices. Cultivated scallops from Cape Cod bearing the Taylor label, and singing scallops from the Pacific Northwest, usually sold in the shell, are both sold for \$6 to \$10 a pound. Shucked bay scallops are also coming in from Mexico and should be available soon from Nantucket.



**Alabaster Murex** (*Siratus alabaster* [Reeve])— One of the 24 beautiful postcards in the Shell Museum's new booklet.

### PIN MONEY



The **Treasure Coast Shell Club** is proud to announce that they now have club pins available. The pins are 1" in diameter and are multicolored cloisonne on gold metal. They feature the very attractive club logo, a treasure chest overflowing with shells. The pins are available from the treasurer at \$3.00 each plus .50 per pin shipping. Contact: Linda Zylman, Treasurer, 1850 S.W. Crane Creek Avenue, Palm City, Florida 34990

The **Georgia Shell Club** has a new pin. . . a lighter weight one than the old design, they assure us. This is a beautiful design, again featuring their club shell, *Busycon carica*. It is available for \$4.00 post paid from John Cramer, 2778 Wind-ing Lane, Atlanta Georgia 30319.



### FUND-RAISING POST CARDS

The Shell Museum and Educational Foundation on Sanibel Island has come up with a sheller's delight in the form of a large booklet containing 24 removable postcards showing colorful photographs of unique shells, such as Springer's Top-shell and the Harp Dove-shell, as well as favorite standbys like the Chambered Nautilus, the Queen Conch and the Lion's Paw Scallop.

Jointly published by the Shell Museum and Dover Publications of New York, the booklet has a lively text about each species by Dr. R. Tucker Abbott, along with the story of the new Shell Vision Bank. The proceeds from the sales of the postcards go towards the new educational foundation on Sanibel. A single copy sells for \$4.95, plus \$1.05 for mailing and sales tax.

Some collectors will want two copies (\$11.00), one for their library, the other for correspondence to 24 friends. Don't forget that postcard postage is only 15 cents. Remit to "The Shell Museum," Box 9, 2440 Palm Ridge Road, Sanibel, FL 33957 or American Malacologists, Inc., P.O. Box 2255, Melbourne, FL 32902.

## REVIEWS. . .

**Wagner & Abbott's World Size Records 1990 — Supplement 4, Standard Catalog of Shells** by Robert J. L. Wagner and R. Tucker Abbott. American Malacologists, Burlington, MA. 80pp., \$9.00 postage paid.

This 1990 listing of world size record shells continues the editors' tradition of compiling information provided by collectors on the largest known specimen of various mollusks. Two thousand, three hundred and eighteen species and subspecies are covered in the current listing, nearly double the taxa recorded in the 1985 edition. The format has larger and easier to read type and is organized with genus names in bold type, with species and subspecies arranged alphabetically under each genus. Additional data provided are size (in centimeters), owner, locality, and date collected or registered. This booklet, hole-punched to be added to the **Standard Catalog** binder, contains an introduction and 76 pages of size records, followed by a 4 page alphabetical index of owners. This feature allows the reader to tell at a glance who owns the most records, and which of one's friends is fortunate enough to possess a world record size shell.

The introduction by the editors provides all details necessary for understanding both the format of the listing and the process by which new records can be verified. It is important to note here that the senior editor has a new address — Robert J. L. Wagner, 2114 James Buchanan Drive, Elizabethtown, PA 17022-3101. This edition contains very few misspellings, and it is hoped that these will be corrected in the next edition. One error on page 80-059 should be changed now — the species *mirabilis*, listed under *Teramachia*, properly belongs to the genus *Iredalina*, also of the family Volutidae.

There is one continuing difficulty that can only be remedied with the cooperation of the owners of world size record specimens. To ensure the accuracy and timeliness of records listed in future editions, owners are requested to notify the senior editor when disposing of any world size record shell. To illustrate this point, this reviewer can document the presence of 35 additional record size specimens in the American Museum collection — all of these shells have been donated since publication of the 1985 edition.

This is an interesting publication and will be fun reading for the collector. It should encourage avid shellers to document any world record specimens they may have, and thus add additional names to the list of owners of world record size shells.

**Sowerby's Book on Shells**, 1990 re-issue of the 1852 fourth edition of **A Conchological Manual** by G. B. Sowerby II. Crescent Books, New York. 101 1/4" x 11 1/4", 139pp., 40 color plates, color frontispiece, dust jacket, end papers, hardcover. \$15.00.

This large-format volume is a beautiful and faithful reproduction of the text and plates of the fourth and last edition of this historical volume on conchology, first published in 1839. The 28 Sowerby plates have been enlarged in this 1990 volume, but there is no loss of quality from the original work. The addition of twelve plates from d'Orbigny's **Dictionnaire Universel d'Histoire Naturelle** (1839-1849) will allow students to compare the British and French styles of illustration. One should note here that d'Orbigny's plates are oriented with the apertures of the gastropod shells upward, while Sowerby's plates show aperture downward, the orientation we are generally accustomed to. All the plates are crisply executed, and will allow easy and accurate recognition of species pictured.

The Sowerby text, here unaltered from the original, was written to introduce conchologists of the mid-1800's to the study of mollusks. Conchologists of the 1990's will benefit from a careful reading of this text and it will prove a most interesting study to note the advances in our science that have been made over the last 140 years. Most of the basic data of this book remain

valid today, and this reviewer believes that we can learn from and enjoy reading it.

Noted conchologist S. Peter Dance has written an informative foreword to the 1990 edition — a worthy complement to the original preface and introduction here reprinted. This volume is a pleasant addition to the currently available mollusk literature, and the \$15.00 list price is surely one of the great bargains of 1990. Highly recommended.

— Walter Sage

## THE LIFE SPAN OF MOLLUSKS

by R. Tucker Abbott

How long does a seashell live? Do scallops survive longer than one season? Are the *Tridacna* giant clams the longest living of the bivalves? These and many other longevity questions have been answered in a recent survey paper assembled by Joseph Heller of the Hebrew University in Jerusalem (**Malacologia**, vol. 31, no. 2, pp. 259-295, 1990).

Heller lists the life durations of 547 molluscan species from marine, freshwater and terrestrial habitats. Life-spans of mollusks range from two months (short-lived) to over 200 years (long-lived). The "flash-in-the-pan" mollusks living for less than three years include most of the cephalopods but not the Chambered Nautilus that lives for 20 years; many of the small freshwater Fingernail Clams, *Sphaerium*; the shipworms; garden slugs; most freshwater snails; and practically all of the nudibranchs.

Champions of age include the New England Mahogany Clam, *Arctica islandica* (220 years), the northwest Geoduck, *Panopea abrupta* (120 years), the European freshwater mussel, *Margaritifera* 116 years in captivity), the Surf Clam of New England, *Spisula solidissima* (31 years) and the European oyster, *Ostrea edulis* (20 years).

Our edible Eastern U.S. scallops, *Argopecten*, last only two years, but the Iceland Scallop, *Chlamys islandica*, lives for 23 years. *Mytilus* mussels range from 5 to 39 years.

The fancy marine snails vary in age from a few years to 25 years, some examples being *Conus arenatus*, 19 years; the Queen or Pink Conch, 7 years; *Littorina littorea*, 9 years; *Trochus niloticus*, 15 years; and *Terebra gouldi*, 10 years. Not mentioned in the survey are many authentic aquarium cases recorded by private shell collectors, such as member Robert Lipe's *Cypraea arabica* that is still living at the age of 13 years in his Florida saltwater tank.

Heller found that most of the short-lived mollusks included those with transparent or no shells (slugs), those less than 5mm in adult size, and those exposed to high solar radiation and high temperatures (desert snails). On the whole, bivalves are more long-lived than the mollusks of other classes.<sup>1</sup>

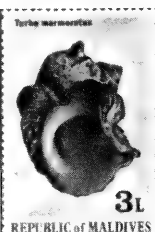
As for the age of *Tridacna gigas*, those four foot giants, it still remains an unsolved mystery. Estimates range from 12 years for a two-footer to over 200 years for a giant adult. The several scientific ways of measuring "life spans" were outlined by Alex Comfort (incidentally, also the author of **The Joy of Sex**) in his article in 1957 on "The Duration of Life in Molluscs" in volume 32 of the **Proceeding of the Malacological Society of London**. With new methods now available to us today, perhaps the mystery will soon be solved. Artificial hormones are now being used in the mariculture of clams, but the goal is speed of growth, not longevity.

<sup>1</sup> (See also the article by Douglas S. Jones of the University of Florida, "Growth Rings and Longevity in Bivalves," **American Conchologist** Vol. 17 (1):12-13)

\* Founding Director, The Shell Museum and Educational Foundation, P.O. Box 1580, Sanibel Island, FL 33957



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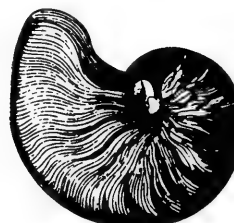
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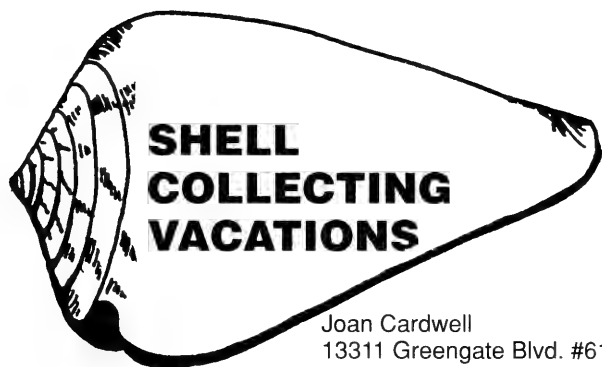
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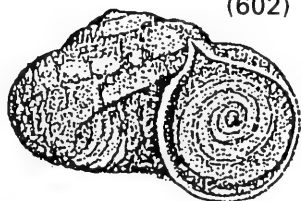
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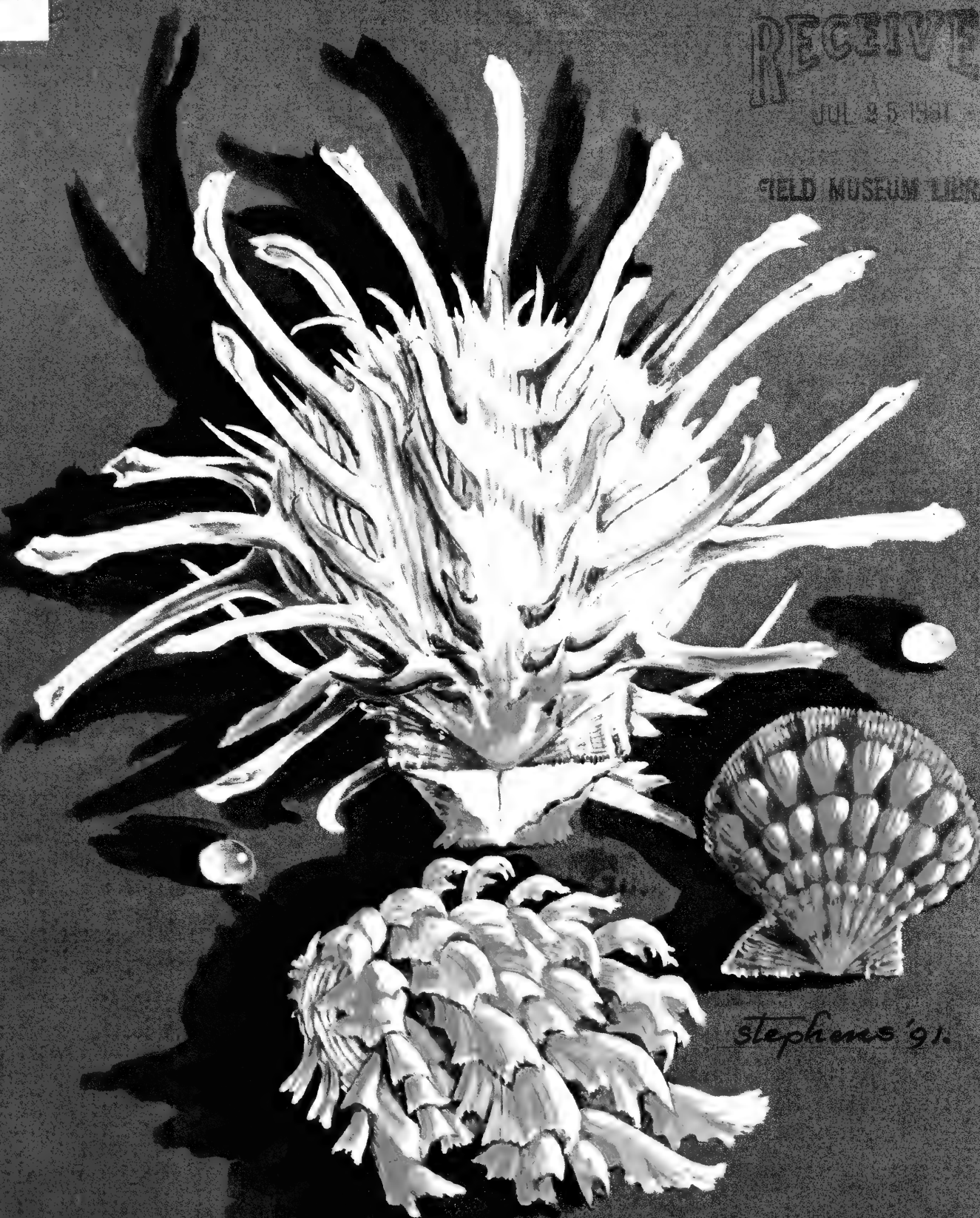
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 19, NO. 1

MARCH 1991



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. Our membership includes novices as well as advanced collectors, scientists and shell dealers from around the country and the world.

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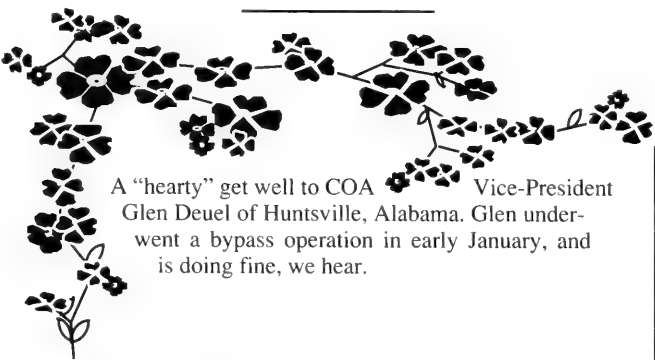
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#### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January. INDIVIDUAL (per year) \$12.50; FAMILY & CLUB \$15.00; CANADA & MEXICO \$15.00; THE AMERICAS (Air Mail Postage) \$20.00; OVERSEAS (Air Mail Postage) \$25.00. NEW MEMBERS send money order or check with Transit Enrouting and Account Numbers printed at bottom to the MEMBERSHIP CHAIRPERSON, Bobbie Houchin. RENEWALS and ADDRESS CHANGES are sent to the TREASURER, Walter Sage. Back issues are available from Mrs. Houchin @ \$2.50.

**COVER:** Sue Stephens celebrates the colorful glory of bivalves in her beautiful acrylic painting of the Chrysanthemum shell, *Spondylus americanus*; the Leafy Jewel Box, *Chama macerophylla*; and *Lyropecten nodosus*, the Lion's Paw. The *Spondylus* and the *Chama* are in the collection of Al Deynzer; the Lion's Paw is in Sue's own collection.



A "hearty" get well to COA Vice-President Glen Deuel of Huntsville, Alabama. Glen underwent a bypass operation in early January, and is doing fine, we hear.

## PRESIDENT'S MESSAGE

The members of the executive board and the committee chairpersons met in Louisville in mid-January and I am happy to report that we had a very productive meeting. First, the Jacksonville Shell Club (Florida) was voted as the Host Club for the 1992 COA Convention. We are very pleased to accept their bid and are really looking forward to a great convention in Jacksonville in 1992.

Secondly, we decided to publish and distribute Lucy Clampit's beautifully written history of the COA at that time. If any of you would like a draft copy now, let me know.

Finally, and most important, we discussed and began formulating plans to change the administrative framework of COA. It was decided that the rapid growth of our membership warranted more membership representation in conducting the affairs of the COA. To this end, we decided to plan for a change in the constitution and by-laws whereby the committee chairpersons as well as the existing board of directors would be voting members of an expanded board. The initial steps were taken in Louisville, but we have more work to do, and will meet again in July in Long Island during the Convention to continue our efforts. I welcome, or rather I solicit your ideas, thoughts, suggestions, etc., regarding this reorganization.

The Long Island Shell Club is busily planning for the July convention which promises to be a gala affair. You'll find more details in the enclosed flier. We are still looking for program presentations for the 1991 Long Island Convention. Contact me directly or Walter Sage.

— HANK FOGLENO

### WANTED: SLIDES OF PAST COA CONVENTIONS

If you have slides of past conventions (the older, the better!), please send up to ten (per convention) to:

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These will be used at the 1991 COA Convention and then returned. Please be sure to put your name and initials on the slide and the year it was taken.

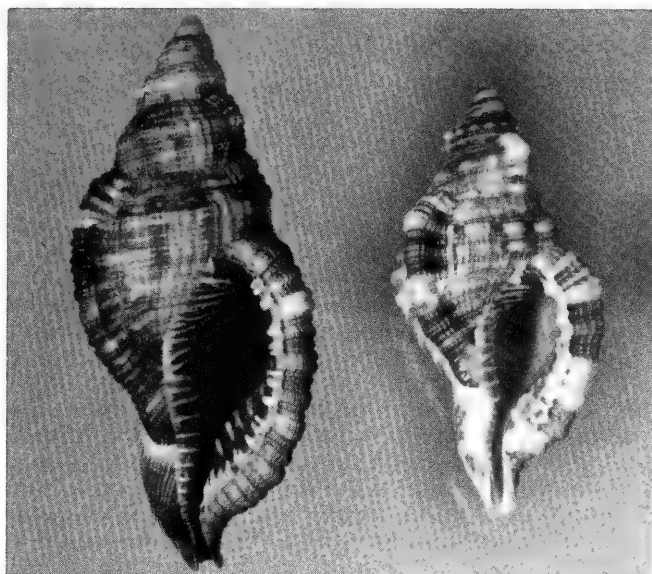


### HELLO, SASC!

On Monday, October 22, 1990 about 15 collectors gathered in Mobile, Alabama to organize the South Alabama Shell Club, and at present there are 21 members. The club shell is the newly designated Alabama State Shell, *Scaphella junonia johnstoneae* Clench, 1953. A newsletter is in the works, but the club is still struggling to find an appropriate name reflecting the state

shell, yet not conflicting with that of existing club newsletters. Member Jack Dennis designed the club logo which also features the club shell. At the January meeting, the club elected its first officers: Ron Clark, president; Doug Shelton, vice-president; Shirley Dennis, secretary; Eloise Brandon, treasurer. Also at the January meeting the club accepted sponsorship of the soon-to-be refurbished shell museum at historic Fort Gaines on Dauphin Island. The club meets every first Monday of the month at 7:00 p.m. at the public meeting room at the Mobile Festival Center in Mobile. All shell collectors visiting the Mobile area are invited to attend.





### Letters to the Editor:

It seems that there is a mistake in the identification of the shells in Peggy Williams' article, "World Travelers," figure #1. The shell on the left is indeed *Cymatium (Septa) pileare* (Linne, 1758). However, the shell on the right appears to be *Cymatium (Septa) aquatile* (Reeve, 1844). Refer to the March, 1975 issue of *Hawaiian Shell News*. Charles Wolfe's article gives an excellent description of the diagnostic differences in the two shells.

Like Charley, I have collected the two shells in the same habitat, in many Pacific areas, from Hawaii to Samoa to Australia's Great Barrier Reef, to the Philippine Islands.

As Willard Scott would say, "Check it out."

Sincerely,  
Bob Purtymun  
1200 Brickyard Way  
Point Richmond, CA 94801



Thanks for the information, Bob. While we're at it, we might mention that the Caribbean *Cymatium occidentale* Clench and Turner, 1947 illustrated in Peggy's article (see inset, right) 1947 is lately being recognized as separate from the Indo-Pacific species *Cymatium rubeculum* Linne, 1758

(see inset, left). The common ancestry is quite obvious in both pairs, however, whether you are inclined to lump or to split.

### OOPS!

Due to a printer's error, two sets of photos were switched on page 15 of Kevan Sunderland's "Caribbean Epitoniidae Part II" in the December issue of *American Conchologist*. The photo of *Epitonium nitidella* (Dall, 1889) is printed over the caption for *Epitonium venosum*, and vice versa. The same (and much more obvious) reversal occurred for *Epitonium rupicola* (Kurtz, 1860) and *Opalia pumilio* (March, 1874).

To the many fans of Kevan's Caribbean series of centerfolds, we wish to explain that setting up this excellent feature and keeping the often very similar species straight is somewhat of a risky proposition, first for Kevan and then for us — and finally, for the printers, who don't know an epitonium from an oyster, it is a nightmare. We thank all of you alert readers who caught our mistakes. We regret any confusion this may have caused, and we apologize to Kevan for the error.

## WHAT WAS THAT CYMATIUM?

by Richard Goldberg

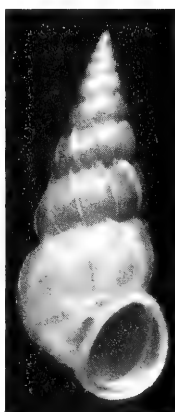
There is often discussion as to whether *Cymatium pileare* (Linne, 1758), the closely related *C. aquatile* (Reeve, 1844), and the appropriately named *C. intermedium* (Pease, 1869) are all forms or subspecies of *pileare*, or in fact three full species. A couple of letters received relative to Peggy Williams' interesting article, "Why They Live Where They Live: World Travelers" [*Am. Conch.* Vol. 18(4) December 1990, p. 16] stated that in her illustration #1 there are two species represented, *C. pileare* (left) and *C. aquatile* (right). It is interesting to note that in the major references I checked, most authors have approached the *pileare/aquatile* problem differently.

In the standard reference for the Caribbean, *American Seashells* Second Edition by Abbott, he cites and illustrates *C. pileare* but does not list or recognize *C. aquatile* in the Caribbean, though the specimen illustrated as *C. nicobaricum* on Plate 7 seems for all intents and purposes to be a specimen of *C. aquatile*. Later Abbott, in *Compendium of Seashells*, illustrates *C. aquatile*, (and *C. intermedium*) as forms of *C. pileare*, but only from the Pacific. It is known that *C. intermedium* is not found in the Caribbean.

In Kay's *Hawaiian Marine Shells*, she treats each as a distinct species, and states under *aquatile*, "... *C. aquatile* is one of three species which have long been confused. Shells of *C. intermedium* and *C. pileare* resemble those of *C. aquatile* in shape, size and sculpture but differ in details of apertural sculpture and color (Wolfe, 1975), and in size and shape of the protoconch.

In *Hawaiian Shell News*, March, 1975 Charles Wolfe outlines the differences of this complex in Hawaii. He describes the aperture of *C. pileare* as having dark staining between the plications on the columella, while in *C. aquatile*, there is no staining. In *C. pileare* there are paired white lirae inside the outer lip which begin at the lip edge and extend deep into the aperture; in *aquatile* the lirae are very short, and resemble rows of teeth instead of lirae.

I personally have found both *C. pileare* and *C. aquatile* throughout the Caribbean, in one case both on the same reef (Calabas Reef, Bonaire). I have also found the Caribbean *aquatile* to be more extreme in sculpture in most cases than specimens from the Pacific, where it is sometimes more closely related to *pileare* in general features. One must ultimately make up his own mind as to whether *C. aquatile* is distinct from *C. pileare*, at least until anatomical studies are conducted, but I do believe it is distinct enough to receive form status, if not subspecific recognition.



*Epitonium nitidella*



*Epitonium venosum*



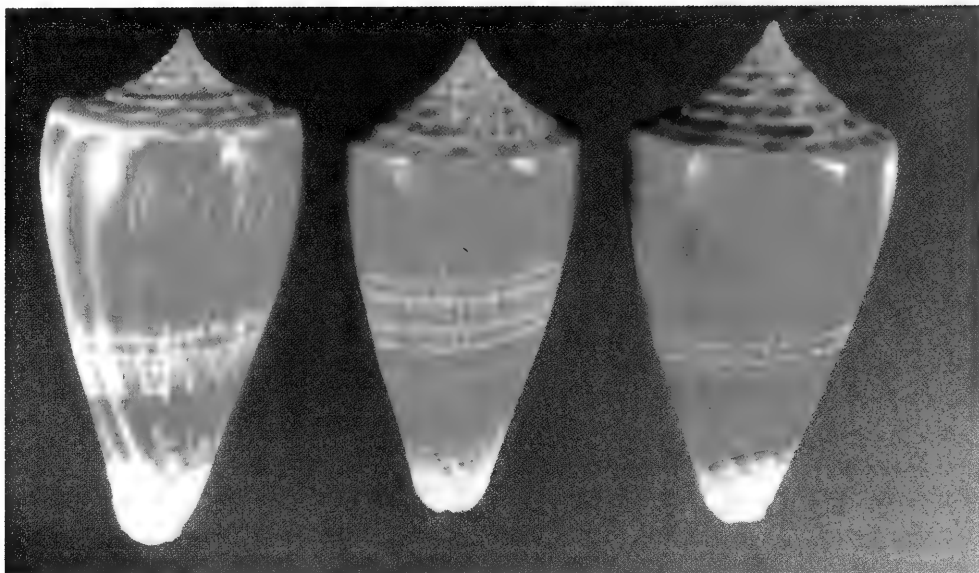
*Opalia pumilio*



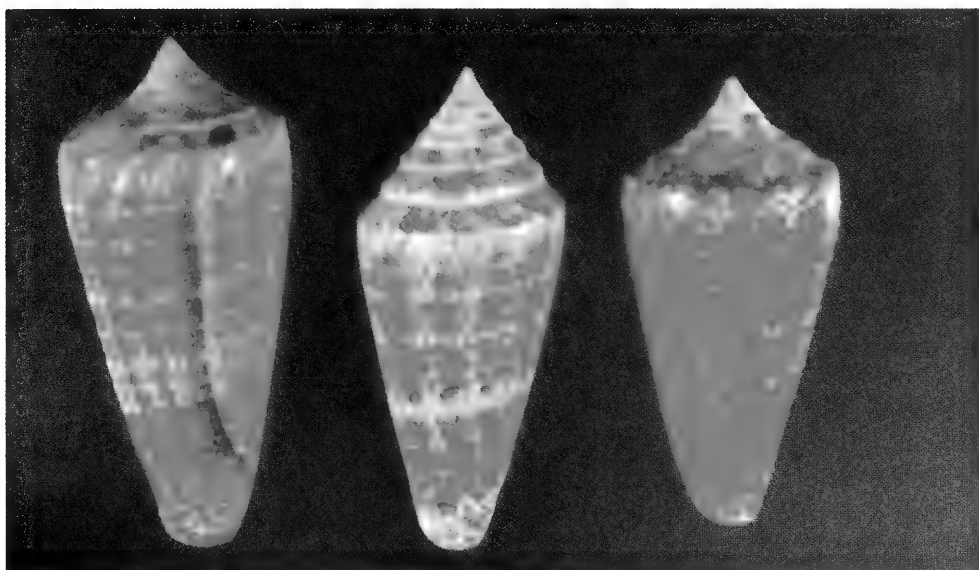
*Epitonium rupicola*



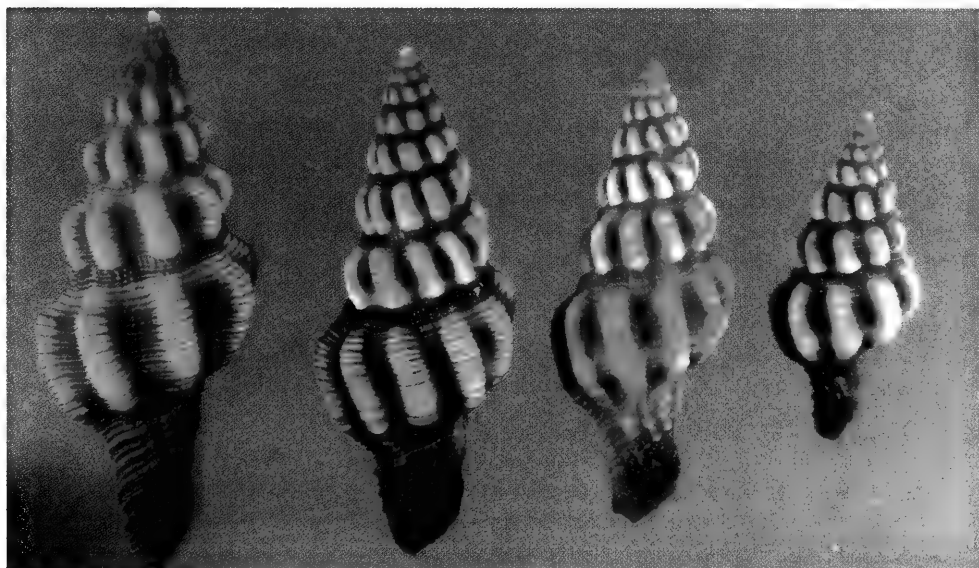
*Conus sunderlandi* — Left: 38mm, Utila, 10' in sand and grass, 38mm. Center: Utila, 40' in sand and grass, 35mm. Right: Roatan, 110' on silty sand, 37mm.

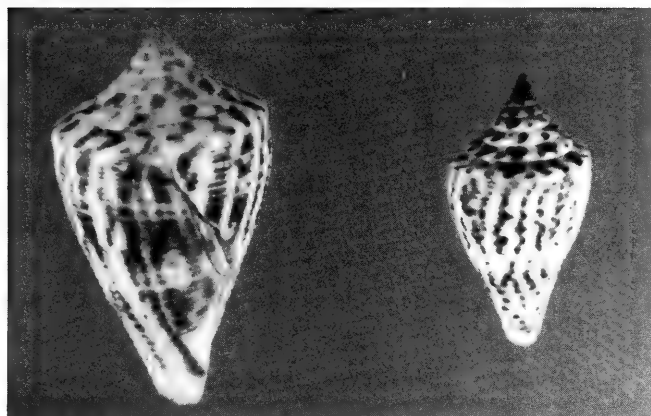


*Conus harlandi* — Left: Utila, 10' in sand and grass, 37.5mm. Center: Utila, 60' on silty sand, 36mm. Right: Roatan, 80' on silty sand, 34mm.

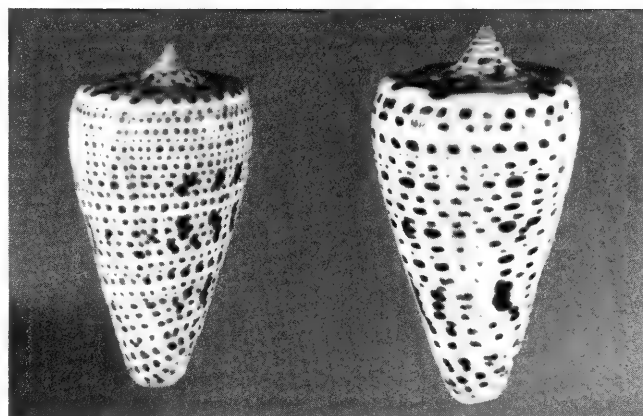


*Latirus brevicaudatus* — Utila, 40 to 60' on silty sand. 54 to 32mm.





*Conus garciai* — Left: a 35mm specimen from da Motta's original type lot, trawled off Punta Patuca, East Coast, Honduras, 120' on a mud bottom. Right: a 25mm specimen from Utila, 60' on silty sand.



*Conus spurius* — Left: Utila, 25' in sand and grass, 50mm. Right: Roatan, 90' on silty sand, 55mm.

## NEW AND UNUSUAL FINDS FROM THE BAY ISLANDS OF HONDURAS

by Wayne Harland

Much has been written concerning "new" finds from the Bay Islands of Honduras. Whether you are a "lumper" or a "splitter," here are some hitherto unreported finds from the Bay Islands.

I was involved in the original dive trips to the Bay Island of Utila which resulted in many newly proposed taxa. We presumed these species to be endemic to Utila. Our reasoning went as follows: Roatan, Guanaja, and Cayos Cochinos, other major Bay Islands, have had more well-developed dive operations than Utila. With the emphasis on and promotion of these areas as dive destinations, we assumed that if there were similar species on these islands, they would have been discovered long ago. This is especially true for Roatan, where commercial shrimping and diving are mainstays of the economy.

As a point of note, Utila and Roatan are separated by only 15 miles, but there exist between them several deep-water canyons in excess of 2000' in depth. These deep-water channels could form an effective barrier for species which don't have a swimming veliger stage in their development. Additionally, Utila and Cayos Cochinos are elevations on the continental shelf of the Honduran mainland, while Roatan and Guanaja are true oceanic islands\* which are separated from the continental shelf by water more than 100 fathoms deep. Consequently, we expected similarities in shells from Roatan and Guanaja, and in shells from Cayos Cochinos and Utila.

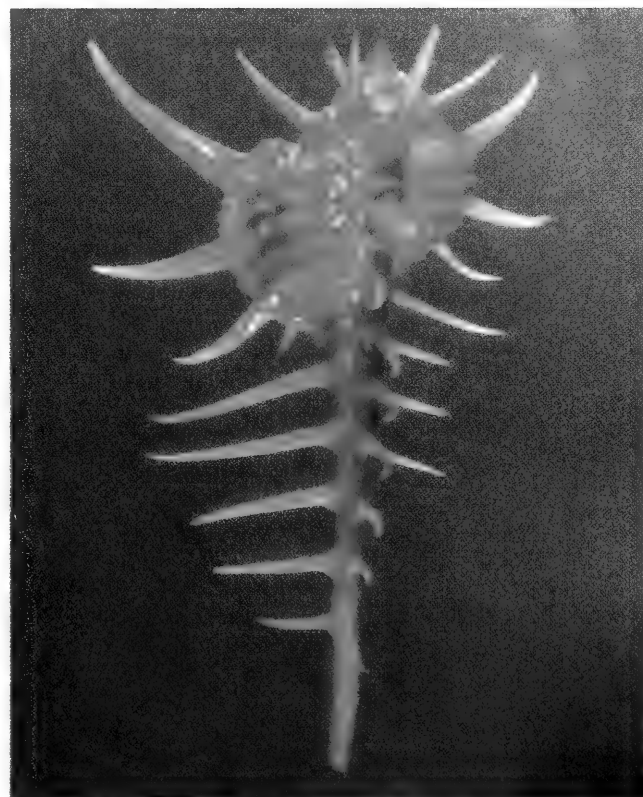
As we have expanded our searches to other Bay Islands, however, we have documented range extensions for two of the new species from Utila, discovered new occurrences, and brought to light some interesting varieties in commonly found species.

*Conus sunderlandi* Petuch, 1987, whose habitat on Utila is 10-25 feet in sand and grass, was found on the east end of Roatan Island in silty sand in 110 feet of water at night. The "Roatan form", is much more richly colored with a deep rust-orange. It carries the characteristic diffused white central body band, and it has a more sharply angled shape than the Utila specimens.

*Conus harlandi* Petuch, 1987, a sympatric species of *Conus sunderlandi* on Utila, was discovered on Roatan as well. It was found in slightly shallower water (80') where the sand was less silty, more the traditional grainy variety most cones inhabit. Again, the color is richer than that of the Utila specimens, but the shell is virtually identical in all other respects.

These species were found on a deep slope where the bottom fell from 20' to well over 300'. The top of the slope is a typical shallow-water sand and grass habitat, dropping to coarse sand, and eventually fine silt at 150'. (Sanity, diving prudence, and two very large sharks prevented exploration beyond that level.) Along this slope, the grass stops at approximately 50', and as the silty areas become more prevalent, a small green calcareous algae of the *Udotea* genus abounds, along with the bottle brush algae, *Penicillus capitatus*.

This silty habitat is also found in several areas on Utila, where similar hitherto unreported species are found. The silty habitat was first found on Utila in the Keys area at the west end of the island. The Keys are a collection of tree-covered rocks and



*Murex cabritii* — Utila, 60' on silty sand, 64mm.

\* See *American Conchologist*, December, 1989, p. 7 for Jose Leal's discussion of oceanic islands and their colonization.

patch reefs on a shallow grass flat with several large, moderately deep channel areas. It is in these channels that the silt congregates, forming a very interesting habitat for a variety of species. In these silty areas we found species which are normally associated with deep-water trawling and dredging. In most cases, the shells found in silt on Utila were found in silty areas on Roatan, leading one to assume that the deep water separating the two islands would not preclude the dispersal of these species.



*Polystira albida* — Utila, 60' on silty sand, 76mm.

The most striking of these silt-dwelling species is *Murex cabritii* Bernardi, 1859. Specimens from these silty areas have very well-developed spines and are large for the species—some almost 3 inches. Within the murex family, *Murex rubidus* F. C. Baker, 1897 exhibits a dramatic color variation between the two islands. The Utila specimens of *M. rubidus* are totally white, while the Roatan specimens are tan with brown bands and a dark brown tail. Another surprising find was the occurrence of *Polystira albida* (Perry, 1811), found on both Utila and Roatan. In many cases, this species is totally encased in a yellow sponge which, when removed, leaves a rusty-looking stain on the alabaster white of the shell. Other inhabitants were various color forms of *Latirus brevicaudatus* Reeve, 1847, and on an old, silt-covered patch of sponge, a smooth-sided, globose *Attiliosa* species.

And, since I am a cone collector, my most interesting find was a variety of *Conus garciai* da Motta, 1982. Most specimens of *C. garciai* are characterized by having straight sides; however, through the courtesy of Dr. Emilio Garcia, I was able to obtain a specimen from the original type lot examined by Mr. A. J. da Motta which is more "turnip" shaped, more like *Conus sennottorum* Rehder and Abbott, 1951. Upon comparing them with the specimens I collected in Utila silt, I can be easily conclude that this represents a new locale for this species.

Other interesting finds in these islands have included a true *Conus spurius* Gmelin, 1791 on Roatan, in addition to the previously documented specimens from Utila. This is not to be con-

fused with *Conus lorenzianus* Dillwyn, 1817, for which "Roatan" is often listed as collection data. *C. lorenzianus* is normally collected by shrimpers on the offshore banks off the east coast of Honduras and Nicaragua, and brought in to Roatan for sale. There is a consistent variation in the color pattern and shape between the Utila and the Roatan specimens of *C. spurius*: Utila specimens have very fine rows of dots and dashes, while the Roatan specimens have larger dots and a more elevated spire.

Also, an interesting variation occurs between the *Muricopsis oxytatus* (M. Smith, 1938) found in Utila and those on Roatan. The Utila specimens have a white body with black spines, while the Roatan specimens have black spots between white spines. Even in juvenile specimens, the Utila variety fails to exhibit any of these black spots.

As exploration expands to others of the Bay Islands, I would expect that even more "varieties" will be found. I know that I will keep on looking.



*Chicoreus* species from reef off Townsville, Queensland.

## NOTES FROM THE PAST

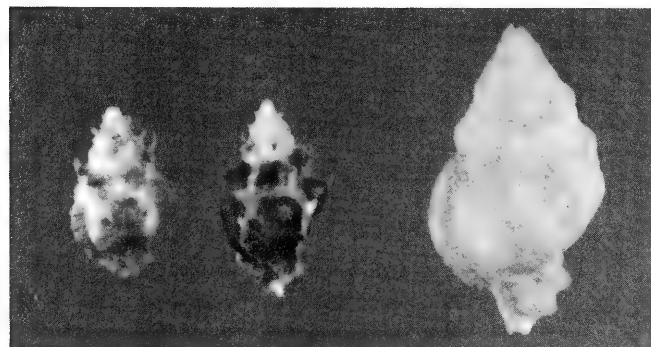
by Bob Purtymun

### Dive Log Entry:

Dec. 8, 1983 — Dive #1 — SCUBA 65-80' 42 minutes  
Coil Reef, off Townsville, Queensland, Australia

Shelling today was excellent! Wes Thorsson and I were diving off the "Divemaster," a charter dive boat out of Townsville. The bottom was a series of ridges covered with live and dead coral. The valleys between the ridges were covered with coral rubble and fine silty sand.

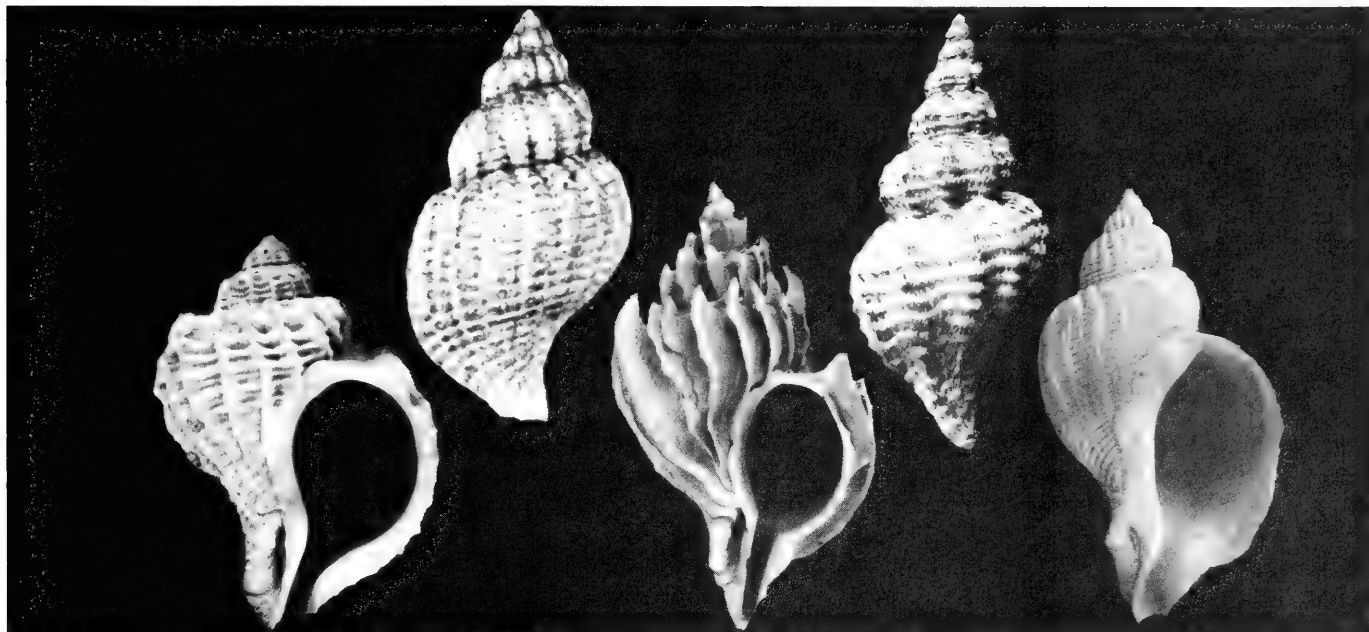
I came up with a bright orange murex. Wes said that the color was only algae and would come off. However, a little Clorox failed and the color remained. Here — you take a look at the shell. What name do you think that it should have? It was on the side of a pillar of coral. The water was so clear that I could see the bottom of the boat 80 feet directly over my head.



*Attiliosa* Species — Left and center: *A. pudicus* (Reeve, 1845) Utila, 10' on reef, about 12mm. Right: *Attiliosa* species — Utila, 60' on silty sand, 18mm.

Bob Purtymun, 1200 Brickyard Way #407, Point Richmond, CA 94801, was, for years, the author of a short column, "On The Reef With Bob Purtymun" for *Hawaiian Shell News*. His many years of diving activities around the Pacific have endowed him with a wealth of experiences which continue to make good reading. We thank him for sharing a few of them with fellow COA members.





LEFT to RIGHT: *Trophon geversianus* (Pallas, 1774), *Xymenopsis muriciformis* (King & Broderip, 1832), *Trophon plicatus* (Lightfoot, 1786), *Fuegotrophon pallidus* (Broderip, 1833), *Xymenopsis albidus* (Philippi, 1846)

## COLLECTING TROPHONS IN ARGENTINA TIERRA DEL FUEGO

by Emily H. Vokes

### Part I

Department of Geology, Tulane University, New Orleans, LA 70118

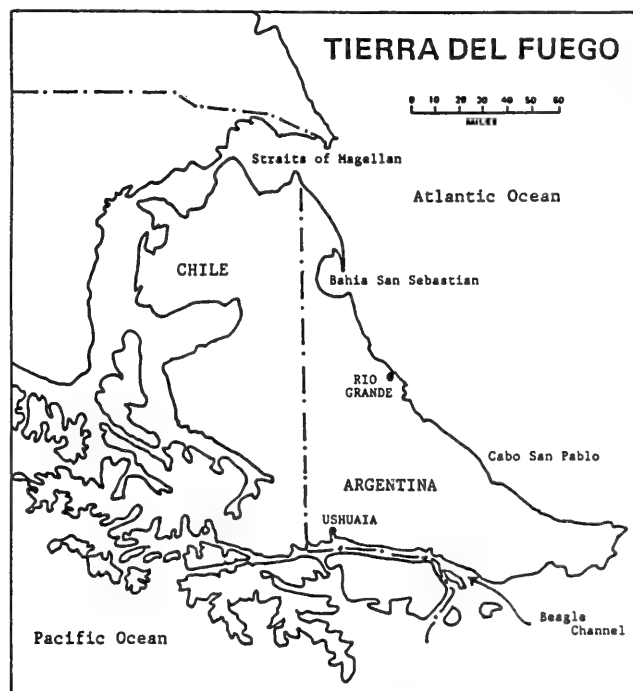
The city of Ushuaia, Argentina, advertises itself as "The End of the World" and as "The Southern-most City in the World." Both statements are true, even though Puerto Williams, Chile, across the Beagle Channel and thus a mile or so farther south might dispute the latter (Puerto Williams is a Chilean naval base with a permanent population of about 4000 people, scarcely a CITY).

It is not especially difficult to get to The End of the World; all it takes is time and money — a fair bit of both! One hops on a plane to Miami, then flies for about 9 hours slightly east of due south and ultimately arrives in Buenos Aires, the capital of Argentina.

From Buenos Aires one then gets on another plane, flies another 4 or 5 hours, depending on the number of stops, this time somewhat west of due south, and finally arrives at the end of the world, otherwise known as the Federal Territory of Tierra del Fuego, the capital of which is Ushuaia. Tierra del Fuego, named by Magellan, is actually a very large island (about 250 x 140 miles) shared by Argentina and Chile, the northern side of which is bounded by the Straits of Magellan, the southern side by the Beagle Channel.

Ushuaia, located on the Beagle Channel, is a moderate-sized town, with about 25,000 people, encircled on three sides by towering snow-capped mountains. It is a very popular destination for tourists in the summer months (December, January, February), as it is the center for camping, backpacking, hiking, fishing, etc., for Argentineans on their summer vacations, as well as us foreigners, who come because it is one of the most incredibly beautiful places in the world. In the winter it is equally popular as a center for both down-hill and, especially, cross-country skiing. As a result, there are many hotels, restaurants, rental cars, and all the amenities tourists might want. Curiously, the number of Norteamericanos is quite small; most of the tourists are Europeans — Germans, French, etc. People come to Ushuaia for a variety of reasons, but very few come to collect shells. There are not many beaches and the water is too cold to encourage even shallow wading, much less snorkeling or scuba-diving.

Our first trip to Ushuaia was a brief afternoon stop on a cruise through the Beagle Channel and the Straits of Magellan. We saw a wonderful place with colorful corrugated sheet-metal buildings and Victorian gingerbread trim. With so little time, all we could do was walk along the filthy edges of the harbor among the sewerage and slime — but there were trophons on the beach and that was all it took. We were ready to come back and spend more time. Our second trip, therefore, was Christmas, 1989, when we signed up for a "Wildlife" tour of Argentina. This tour would take us to several different places in both northern and southern Argentina.







Bahía Ensenada, Lapataia National Park, Tierra del Fuego, Argentina. A beautiful shoreline but scarcely a shell to be had.

Once again we returned to Ushuaia, this time for a longer visit. We spent a day scouring the shores along the Beagle Channel in Lapataia National Park, which is REALLY the end of the road, just before you get to Chile. Beautiful bays, inlets, algae-covered rocks, everything one could possibly want—but only a handful of patellids to show for our whole day's effort. Back to the slimy harbor, where once again the collecting was just good enough to tantalize us. Were there not any shells to be found in this area?

On Christmas Day we were having a big Argentinean "parilla" — otherwise known as an all-you-can-eat (and more) lamb roast. But the restaurant did not open until 2 p.m., so for a couple of hours before lunch we decided to wander down to the shore in front of the restaurant and see what we might find. Eureka! Finally, we hit the jackpot. Trophons everywhere — hundreds, all over the beach, which had been formed by a small river flowing into the channel. It was the best Christmas present we could possibly have had.

The fauna at the mouth of the Rio Pipo, as the little river is called, is dominated by specimens of a trophon that has often been called *Trophon decolor* (Philippi, 1845), but is correctly *Xymenopsis muriciformis* (King & Broderip, 1832), figured by Abbott and Dance, 1982, p. 153, as *Trophon hoylei* Strebel, 1904, one of the 13 synonyms for this much-named species! Another name often cited is *Fusus liratus* Gould, 1849, the holotype of which has been figured by Radwin & D'Attilio, 1976, text-fig. 136, and by Kaicher, 1978, no. 1548. (Kaicher also figured this species as *T. decolor* [1979, no. 1978] and as *T. albidus* [1979, no. 2043]; however, the shell she figured as *T. muriciformis* [1979, no. 2121] is really *T. albidus* and not *T. muriciformis* — are you sufficiently confused yet?)

When we returned again this past Christmas (1990), naturally we headed straight for the Rio Pipo. Evidently there had been a storm recently and the beach was littered with specimens with the dried animal still inside. Back in town, in the slimy, sewerage-ridden muck at the mouth of another small stream that comes into the channel we found an even bigger bonanza. Here the specimens of *X. muriciformis* were larger and, more importantly, several were covered with egg capsules. The egg capsules of *Trophon geversianus* (Pallas, 1774), type of the genus, are very strange, and look rather like a row of dimes stuck edge-on, to a strip of scotch-tape. They are relatively large, about 15mm in diameter. The capsules of *X. muriciformis*, however, prove to be more like those of the northern Boreotrophons, which are like small fried eggs, about 6mm in diameter, plastered flat onto shells of other individuals of the same species. This is the same type of capsule found in the New Zealand species referred to the



Emily and Harold Vokes at Lapataia Park. Sign says, "End of Route 3, 3202 km [1985 miles] from km 0 in the capital [Buenos Aires]."



Beach at Rio Pipo, Ushuaia.



A morning's collecting at Rio Pipo beach.

genus *Xymene* and justifies the separation of these forms from the typical *Trophon*.

On the same beach at Rio Pipo there were also lots of *Trophon geversianus*, most of which were broken, as are the other trophons, for the "beach" is really made up of flattened stones, called shingle. The extreme variability of *Trophon geversianus* has resulted in at least a dozen unnecessary synonyms. The majority of the specimens have reduced or no lamellar varices (Abbott and Dance, 1982, p. 152, figure two extreme forms; Radwin and D'Attilio, 1976, pl. 28, figs. 10, 11; pl. 29,



Storm-line composed mostly of *Trophon geversianus* and patellid shells, near Rio Grande.



Collection from Cabo San Pablo.

fig. 2, give typical examples) but all have some sort of spiral ornamentation, which leads to a cancellate pattern.

This is in contrast to the third species which is found much less commonly in the Ushuaia area, *Trophon plicatus* (Lightfoot, 1786), which like the others is also blessed with several names — at least five. It is often figured as *Stramonitrophon laciniatus* (however, the shell figured by that name in Radwin and D'Attilio, 1976, text-fig. 130, is actually *geversianus*, not *laciniatus/plicatus*!). Abbott and Dance, 1982, p. 152, have a good illustration under the name *Stramonitrophon plicatus*.

The generic name *Stramonitrophon* was originally proposed by Powell (1951, p. 156) for this species, on the basis of the



Cabo San Pablo, south of Rio Grande. Rocks in front of headland were covered with mytilids and attendant *Trophon geversianus*.

presence of a thaidine radula, even though he admitted, "apart from the anomalous dentition there is nothing to distinguish *laciniatus* from a normal *Trophon*." Indeed, the operculum, the egg capsules, the shell, everything, is so like *T. geversianus* that I always suspected that he had mixed up his material — but proving it was something else. However, in a recent book by a Brazilian worker (Calvo, 1987, fig. 99), the radula of *T. plicatus* was re-illustrated and it is a normal trophonine radula, and with material obtained on this trip I ascertained this for myself as well. So, I can see no reason to maintain the taxon *Stramonitrophon*.

A fourth species that is the rarest of all in the Ushuaia area is *Fuegotrophon pallidus* (Broderip, 1833), which as *Fusus crispus* Gould, 1849 (one of the six synonyms!) is the type of *Fuegotrophon*. This species is relatively small (under 30mm) and has an elaborate filigreed surface ornament. Neither Abbott and Dance nor Radwin and D'Attilio have figured this species, but Kaicher has figured the holotype of *crispus* Gould (1979, no. 1999). It evidently lives in slightly deeper water; the only good specimens I got came from a pile of mytilid shells dumped by fishermen.

From Ushuaia we moved our base of operations to the only other town in Tierra del Fuego, Rio Grande, located on the Atlantic Ocean side of the island. Everything good that Ushuaia has is sorely lacking in Rio Grande. It is of equal size, about 25,000 inhabitants, in a drab, uninteresting setting that gives new meaning to the words "bleak and windswept." Located in the steppe portion of the island, there is nothing, not even a barbed-wire fence, between you and the South Pole.

Most of the people in Rio Grande have moved there in the last few years as the Argentinean government offers all kinds of special incentives (tax breaks, cheap heat in winter from the nearby gas fields, etc.) to encourage the settlement of this southernmost part of the country. The town is primarily a center for manufacturing electronic equipment — Sony, and others, have large factories here. This is a working town. There are good business-type hotels, but that is about the limit of amenities. The only reason a tourist would go there is to take advantage of the 40 foot tides in the South Atlantic Ocean! So, naturally, we loved the place.

Our first real experience with Fuegan trophons had been our previous trip: when driving from Rio Grande to Ushuaia, we stopped at a highway-side beach and discovered wind-rows of *Trophon geversianus* — literally beach ridges formed of shells. We collected a plastic grocery bag full in a short time and had to be on our way. But that beach had been calling me back for a year, and so we hot-footed it there as fast as we could. It was cold, I'd guess in the fifties, and the wind was blowing — hard — but I was sure that on the rocks off-shore those trophons had to be living. And with tides like that one does not need to snorkel,



The high strand-line at Bahia San Sebastian, north of Rio Grande — it goes on for miles, just like this! Most shells are *Mactra patagonica* d'Orbigny.

just wade about on the sand and look under the rocks. Unfortunately, I discovered that at this particular place, the "sand" was mud, cold squishy mud. I walked around for a half-hour or so, gradually turning blue and finding only a handful of relatively small trophons for my efforts. Finally, discretion won out over valor and I reluctantly headed back to the car and warm feet.

But another day, about 60 miles south of Rio Grande, we visited Cabo San Pablo, a rocky headland that forms a beautiful bay. At low tide the exposed rocks covered with *Mytilus* did indeed harbor lots of *Trophon geversianus*, as I had anticipated, and I did not even have to get my feet damp.

The other reason we wanted to go to Rio Grande was to visit Bahia San Sebastian, about 50 miles north of Rio Grande. This is a large (ca. 20 miles wide) sandy bay that is almost completely enclosed, and has a tremendous tidal range. When the tide is out almost the entire bay is exposed. We had been told that the beach at Bahia San Sebastian is "covered with shells, especially volutes." Obviously, we could not resist. It is true the beach is covered with shells, almost all one species of clam — and there are lots of volutes, all very battered.

But the trip was not a total loss, for there were rare specimens of a trophon that, at first glance, looked like *X. muriciformis*, but are subtly different. And the totally different environment told me it just had to be a different species. When I was able to compare the two forms and consult the literature, I realized this species is *X. albidus* (Philippi, 1846), which has been figured by Kaicher (1979, no. 2021) as *T. muriciformis*, noting that it differs from *T. decolor* (= *muriciformis*) by having weaker axial ribs and finer spiral sculpture.

So the final count for our collecting was five species of trophons, plus several species of patellids, assorted mytilids and other bivalves, and a few odds and ends of other things. Numerically, the trophons are the dominant element of the fauna (after mytilids on which they feed) and fill the ecologic niche of the species of *Nucella* in the northern Atlantic and Pacific.

In most parts of the world trophons are considered to be "deepwater" but here where the water is cold right up to the shoreline, these are intertidal inhabitants. Perhaps in the northern waters, which are equally cold, after all, the *Nucellas* have forced the trophons out into deeper water, as they take over the easy pickings along the mussel-rich shorelines.

It is a long way to go just to collect trophons, but given all the other plusses like the fantastic scenery, the array of wildlife — guanacos grazing along the highways like sheep (of which there are also large numbers), the forests, the wildflowers, the strangely beautiful wind-swept steppeland — it all adds up to an unforgettable experience, well worth the time and effort it takes to get there.

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The following is a list of known or suspected synonyms for the five species of Magellanic trophons discussed in this article. Future work may change some, but the majority are unquestionable synonyms.

#### TROPHON s. s.

##### *geversianus* (Pallas, 1774)

*albolabrus* Smith, 1875  
*bulbosus* (Perry, 1811)  
*calva* Kobelt, 1878  
*gradata* von Ihering, 1897  
*inflatus* (Hombron & Jacquinot, 1854)  
*intermedius* (Hupe, 1854)  
*lirata* Kobelt, 1878  
*magellanicus* (Gmelin, 1791)  
*mawsoni* Powell, 1957  
*necocheanum* von Ihering, 1907  
*peruvianus* (Lamarck, 1816)  
*philippianus* Dunker in Kobelt, 1878  
*varians* (Orbigny, 1841)  
*ventricosus* (Molina, 1810)

##### *plicatus* (Lightfoot, 1786)

*antarcticus* Philippi, 1868  
*gracilis* (Perry, 1811)

*laciniatus* (Martyn, 1874

[non-binomial and not available])

*lamellosus* (Gmelin, 1791)

*patagonicus* (Orbigny, 1841)

#### XYMENE (XYMENOPSIS)

##### *albidus* (Philippi, 1846)

*albus* (Strebel, 1904)  
*elongatus* (Strebel, 1904)  
*ringei* (Strebel, 1904)

##### *muriciformis* (King & Broderip, 1832)

*acuminatus* (Strebel, 1904)  
*buccineus* (Gray, 1839)  
*cancellarioides* (Reeve, 1847)  
*couthouyi* (Strebel, 1904)  
*decolor* (Philippi, 1845)  
*hoylei* (Strebel, 1904)  
*lebruni* (Mabille & Rochebrune, 1889)

*liratus* (Couthouy in Gould, 1949)

*loebbeckei* (Kobelt, 1878)

*obesus* (Strebel, 1904)

*paessleri* (Strebel, 1904)

*pseudoelongatus* (Strebel, 1904)

*textiliosus* (Hombron & Jacquinot, 1854)

*turrita* (Strebel, 1904)

*violaceus* (Mabille & Rochebrune, 1889)

#### FUEGOTROPHON

##### *pallidus* (Broderip, 1833)

*burwoodianum* (Strebel, 1908)  
*crispus* (Gould, 1849)  
*fasciculatus* (Hombron & Jacquinot, 1854)  
*fimbriatus* (Hupe, 1854)  
*hupeanus* (von Ihering, 1907)  
*malvinarum* (Strebel, 1908)

## Another Look at *Sthenorytis turbinus* (Dall, 1908), Comparing It With *Sthenorytis pernobilis* (Fisher and Bernardi, 1857)

by Vivienne B. Smith

\* See also *American Conchologist* 18(4):18, "Range extension for present day *Sthenorytis turbinus* (Dall)," by Vivienne Smith.

Family: Epitoniidae

Genus: *Sthenorytis* Conrad, 1862

Genotype: *Scalaria expansa* Conrad, 1842, subsequent designation de Boury, 1889

Description of genotype:

Shell is heavy (solid), imperforate, strongly costate. Spiral striae may or may not be present. Axial costae may be elevated and bladelike, or broad and occasionally with flattened ridges. Aperture is circular in shape, and holostomatous, while the face of the aperture is offset at an angle of approximately 40°. The operculum is corneous, round, and paucispiral, with 5-6 whorls. Geochronological Range: Eocene through Recent.

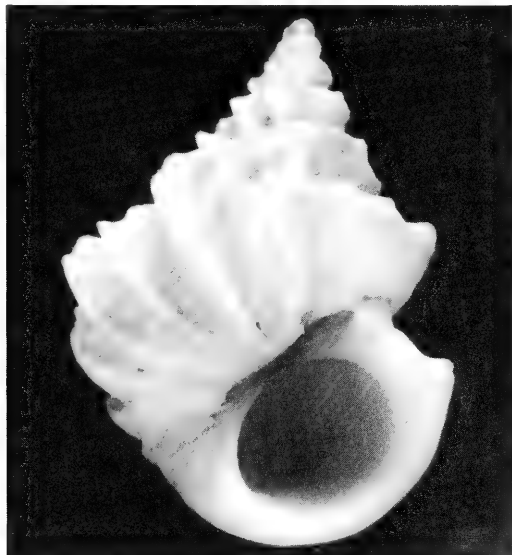


photo by Bill Shaw

*Sthenorytis turbinus*

**Description:** Shell may reach about 40mm in length, and 22.5 to 30.5mm in diameter (world record: 43.2mm length). The shell is heavy, white, occasionally light gray. Angle of spire is about 50%; it is imperforate, with strong axial costae, which are large, thin and bladelike. The costae appear to thicken at their bases, and taper to a thin and backwardly reflected outer margin. The costae on the body whorl number 10 to 14, and they become flattened at the parietal area. Indistinct flattened ridges are visible as spiral sculpture between the costae, and the suture is depressed, or deep, between the costae; the whorls are attached only by the costae. There are two nuclear whorls, which are very small and smooth. The operculum is circular, corneous, and paucispiral (5-6 whorls), with the nucleus approximately in the center. Clench felt that the incised spiral lines are variable, although he found them on all specimens examined, except on early embryonic whorls. In regard to the angle of the costae on the shoulder, the development can be very variable, with some costae being well rounded, while others may be sharply angled.

Clench, in **JOHNSONIA**, gives the following synonymy for *S. pernobilis* (Fischer and Bernardi, 1857):

*Scalaria pernobilis* Fisher and Bernardi, 1857

*Scala (Sthenorytis) belaurita* Dall, 1889

*Sthenorytis cubana* Bartsch, 1940

*Sthenorytis hendersoni* Bartsch, 1940

*Sthenorytis epae* Bartsch, 1940

**Description:** *Sthenorytis pernobilis* is dredged in 90 to 1600 meters, from North Carolina to the Lesser Antilles, and in the Gulf of Mexico, west northwest of the Dry Tortugas.

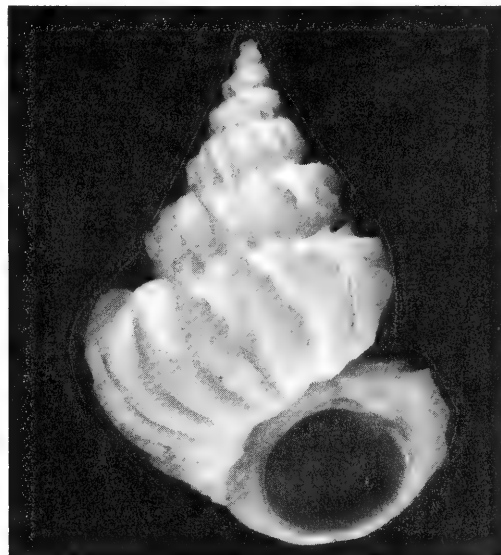


photo by Kevin Sunderland

*Sthenorytis pernobilis*

**Description:** The shell may reach from 25 to 45 mm in length, and 22 to 44mm in diameter (world record: 51.5mm in length). It is heavy, thick, turritate, usually light gray, occasionally white. Nuclear whorls may be eroded, and there are 9 continuous postnuclear whorls, which are rapidly enlarging. Costae are 9 to 12, and edges are sharp, becoming wider where they attach to the whorl. There is a spine at the tip of each of the costae. As they approach the tip, the costae become more flattened; they adhere to the costae above, with a spur which extends immediately to the costa on the left, forming a pit at the suture. On the base, this spur reflects broadly, and fuses with the lip. The suture is deep. The aperture is round, with a thick, reflected lip; this lip develops into a spine as it approaches the shoulder. The operculum is black, circular, thick, and corneous, and the center is depressed.

**Radula:** There are between 40 and 50 teeth in a single row, with similar teeth or unci at the end of each row.

Helen DuShane lists the following synonymy for *S. turbinus* (Dall, 1908):

*Sthenorytis turbina* Olsson, 1964

*Epitonium (Sthenorytis) toroense* Dall, 1912

*Sthenorytis toroense* Hanna & Hertlein, 1927

**Distribution:** The shell is dredged from 110 to 550 meters, from Cape San Lucas, Baja California (recent); Gulf of California (recent and fossil); Panama (recent and fossil); Galapagos Islands (recent); and Ecuador (recent). Its geochronological range is Pliocene to Recent.

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## WANDERINGS OF AN ITINERANT MALACOLOGIST IX

### Equatoriana Airlines, in Jail in Guayaquil, and the Santa Elena Peninsula — 1970

by Donald R. Shasky, M.D.

This tale does not begin in jail, nor does it end in jail. But the jail experience does become interwoven during the first 24 hours of a long, multi-eventful day that took Dr. Jim McLean and me to Los Angeles, Mexico City, Acapulco, Panama City, Guayaquil, Ecuador, and before the night was over, on to Salinas, about 90 miles west of Guayaquil.

Our excursion took us several weeks in planning, since we were to collect on the Santa Elena Peninsula for three and one-half days, then grab an afternoon plane back to Panama City. There Ann Marti was to meet us and take us to Venado Island for that night's low tide and three additional days of collecting there. In hindsight, I should have had a portent of what was to follow before we ever left Los Angeles.

This was in the days before computers, so at every travel agent's desk, I'd study an OAG for the schedules of airlines going to my destination, looking for the best fare. Equatoriana had a round trip fare for \$321. The hooker was that they did not have travel rights between Panama City and Mexico City, so I'd have to return home via Miami. When I picked up my ticket, there was no confirmed reservation from Panama City to Miami, and the travel agent couldn't tell me why. It seemed very strange, so, to get it settled, I drove into Los Angeles to confront the Equatoriana office manager, eyeball to eyeball. I wasted my time, my gasoline and my breath. He didn't know either. And my problem didn't concern Jim McLean because he was flying to San Andreas Island, Colombia after our Panama segment was completed, instead of coming directly back to Los Angeles.

After an uneventful flight to Mexico City, and check-in at the Equatoriana desk, we were told our plane was on time. I asked the agent to confirm my return flight from Panama to Miami. He replied, "Do that when you get down there."

At the boarding gate, the vintage Lockheed Electra was waiting but there wasn't anyone else in sight. After 20 or 30 minutes, a few souls began to drift in. An hour after our scheduled departure, everyone was on board for the non-stop leg to Panama City. Once airborne, I thought I heard the stewardess announce in Spanish that we would be landing in Acapulco in one hour. Out of my seat like a catapult to make sure that my Spanish hadn't cross-wired, I learned that we were so heavily loaded for Mexico City's altitude that we needed to put on more fuel in Acapulco to get us to Panama. Well after 1 a.m., we touched down in Acapulco, and guess what? No one was at the airport to take care of our vital need. We had to sit in the suffocatingly hot plane for almost an hour until someone filled it with the vital juice.

As soon as we landed in Panama City, I dashed for the Equatoriana desk to confirm my return ticket to Miami, eight days hence. The lovely lady at the desk said, "Do it in Guayaquil." I didn't want to do it in Guayaquil. I didn't want to do it anywhere. I just wanted the confirmation. Mood indigo.

On arrival in Guayaquil, I had to check in at Immigration. Now according to travel guides, Ecuador didn't then require passports for U. S. citizens, so I didn't bring a passport. But, you guessed it — the first thing I was asked for at Guayaquil immigration was my passport. I explained the regulation to the agent, who adamantly informed me that I was wrong. I pointed out how badly informed he was. He demanded to know how much money I was carrying. I angrily threw my wallet across the table to him and "Count it!" He immediately backed off, pushed the wallet to me without opening it, said, "Okay, okay!" and typed out the visa. Our baggage was not searched.



Dr. Jim McLean on the road in and out of Playas, Ecuador.

Now that was a Wednesday morning, and we were due to leave for home the following Sunday. So I dashed again to the Equatoriana desk in hopes of my confirmation, only to be told, "Get that done next Sunday."

We rented a station wagon for the trip to Salinas, decided to see a bit of Guayaquil before hitting the road, and parked along the *malecon* where a policeman was directing traffic. We locked up and were away about an hour. On returning, we were aghast! The rip-off under the policeman's nose was monumental: both my movie and my 35mm camera were gone, as well as most of Jim's clothing dive gear.

Welcome to Guayaquil!!! A real armpit of a city.

Of course the traffic cop hadn't seen a thing. He was a traffic policeman and theft was in the hands of the national police. He got in and guided us to the national police office, where we made our report. The national policeman wanted to see the scene of the crime, so back we went, this time with two policemen in the car. After two minutes at the scene, he asked us to take him back to headquarters. Driving through an intersection at his instruction, I was broadsided. The car that hit us looked worse than ours. Immediately, we were surrounded by three or four traffic officers and our national policeman disappeared.

It was obvious to all that I was at fault and I was escorted to *el carcel*, just a short walk away, where I was to be held until a judge could come and verify that my insurance would cover both cars. After a two-and-a-half hour wait for His Honor, he arrived, was convinced, and I was released. So much for jail in Guayaquil!

By then late in the day, we undertook the 90 mile drive to Santa Elena over unfamiliar roads and arrived about 11 p.m. The hotel we found had no one at the desk; after a great deal of pounding, we roused a night watchman who told us there was only one room available, on the top floor. With no elevator, we struggled to carry what gear we had left after the theft up a narrow stairway to our penthouse! The cost of our room, including meals, was \$3.75 each.

We planned to collect three days in and around Santa Elena, then leave early on the fourth morning to spend one low tide at Playas, halfway back to Guayaquil. The first day we collected in Santa Elena, turning over rocks to one side of the city's main beach. It was fairly good collecting, but we found nothing exciting.

The morning of the second day, we drove along the coast of the Gulf of Guayaquil to a spot about ten miles outside of Santa Elena, Punta Ancon. We chose the west side of the point, then

being lashed by a heavy surf. I did manage to find a single dead specimen of a turrid, *Kermia informis* McLean & Poorman, 1971. This was the first specimen found outside the Galapagos Islands. That night we worked the east side of Punta Ancon, but the tide did not go out far enough for effective collecting. In front of a fish-processing plant we found many hermit crabbed specimens



I'm holding my two live specimens of *Turbo magnificus* on the beach at Punta Ancon.

of *Turbo magnificus* Jonas, 1842. We selected a number of the best specimens, since we were happy to find even dead examples of this rare species. With that in mind, we went back to the same place the next morning, hoping to find it alive. About two-thirds of the way through the tide, I felt under a small rocky ledge and found my first of two live specimens. Jim, unfortunately, was skunked. But later, on one of his trips to Peru, he did find live specimens of *Turbo magnificus*.

Our stopover in Playas for a couple of hours of collecting was not terribly exciting, although we did find a number of



The specimen of *Turbo magnificus* used for the illustration in the second edition of Keen's *Seashells of Tropical West America*, 1972. It appears on page 354, fig. 150.

interesting small species. It isn't often that one gets an opportunity to collect in two different countries in the same day. A few hours after we had left Playas, we were collecting the night tide at Venado Island, Panama, not in the scope of this tale, but very exciting collecting, all the same.

Sunday afternoon arrived, the terminal was jammed, and our Electra was coming in from Lima, Peru an hour late. Of course, I went for that confirmation! But I was told to get it confirmed in Panama. What a revelation! Equatoriana couldn't confirm a reservation at its home airport.

In Panama I made a beeline for the main office. The agent, looked at my ticket and said, "We are not flying on Friday," without further explanation, and told me I would have to fly out

a day early! A day of my vacation! I protested, to no avail.

Ann Marti deposited me at the airport on Thursday, and, with the Equatoriana plane sitting at the gate, we said goodbye. I'll never forget what followed. (I have returned to Ecuador four more times, but not on Equatoriana.)

I checked in, went to the gate, and was alone — thirty minutes later, still alone, — in thirty minutes more, another Equatoriana plane taxied up and its passengers deplaned — an hour more and the Mexico City passengers were called. Then the in-transit Miami passengers were called to board the second plane. Fifteen minutes later, all the passengers from both planes got off and switched planes! New passengers to Miami were then called, including me. I boarded.

Once over the Caribbean, I had the audacity to inquire of the stewardess about all that Mickey Mouseing on the ground. Reassuringly, she replied, "Oh, we're taking this plane into Miami for repairs." I wondered how Jim was doing in San Andreas.

We were more than two hours late getting into Miami, and I had missed my flight, and wait an additional five hours for the next one.

A story comes to mind, told by an English lady who lives in Quito, Ecuador. At the time of the story, 1978, Equatoriana had three 707's that flew between South America, Los Angeles and New York. On a national holiday, she heard a tremendous roar over Quito. She ran to the veranda to find the three 707's flying in formation as part of the big fiesta. So much for their flight schedules to Buenos Aires, Santiago and New York.

The following spring, Jim and I were off to Peru, where we collected from Paita north to Tumbes, the topic of my next wandering.

## IN MEMORIAM

### *Land Snail*

*He visits us at night,  
Intent upon a snail's specifics,  
And leaves a long, erratic trail  
Of mystic, silver hieroglyphics.*

Selma Raskin

In late December Selma Raskin, a writer singularly talented in the difficult genre of light verse, passed away in Los Angeles. Her poems appeared in numerous popular national magazines, delighting millions of readers; humorist Bennett Cerf called them "devilishly clever." Though she published a number of longer poems and several humorous articles, she was perhaps best known for her incredibly concise verses, including one four-line gem only seven words long.

Selma became interested in seashells in the late sixties; she built a fine collection of worldwide shells and belonged to several malacological societies. She and her husband Ed collected shells throughout the South Pacific and in Mexico, Florida and California. The book, *It's EASY to Say Crepidula!*, which I was privileged to co-author with her, was Selma's idea. In the past year she published a unique cookbook she called *Vittles and Verse*, combining fine recipes with appropriate verse.

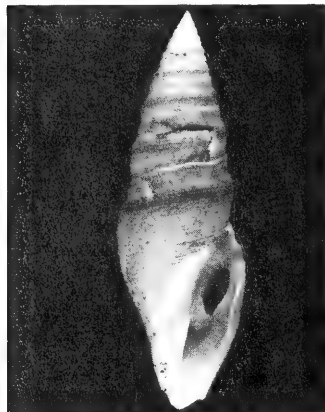
Selma Raskin loved life as she loved beauty, and she touched few lives that were not enriched by that association; her wisdom, warmth and wit charmed all who knew her. She leaves her devoted husband and family, and a multitude of loving friends who will miss her always.

— Jean Cate

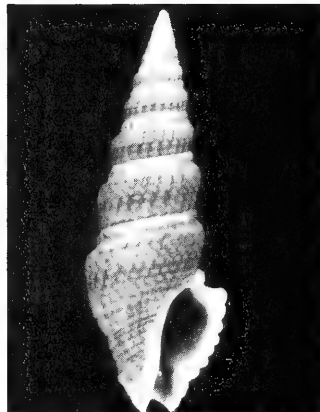
## ATLANTIC AND CARIBBEAN TURRIDAE

by Kevan Sunderland

P.O. Box 130243, Sunrise, FL 33313



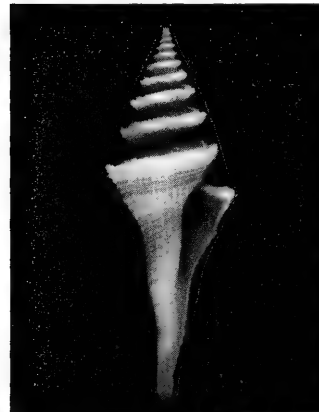
*Bathytoma viabrunnea* (Dall, 1889). 70mm. 180 fms., off Key West, Florida.



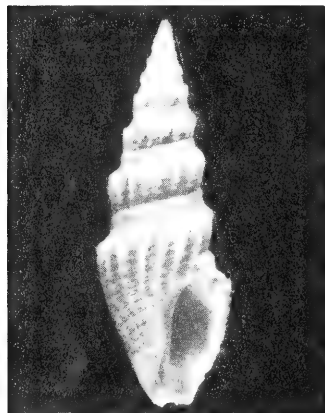
*Clathrodrillia gibbosa* (Born, 1778). 44mm. Intertidal in sand, Cubagua, Venezuela.



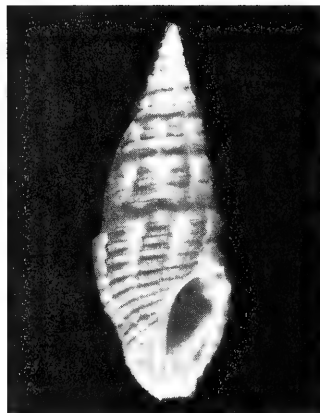
*Cochlespira radiata* (Dall, 1889). 27mm. 450', off Barbados.



*Cochlespira elegans* (Dall, 1881). 48mm. 90 fms., off Dry Tortugas.



*Crassispira cubana* Melvill, 1923. 27mm. 300', off Egmont Key, FL.



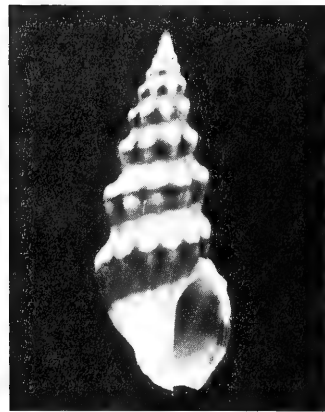
*Crassispira sanibelensis* Bartsch & Rehder, 1939. 29mm. 300', off Egmont Key, FL.



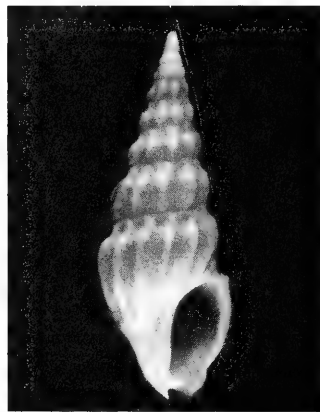
*Crassispira tampaensis* Bartsch & Rehder, 1939. 32mm. 100', off Egmont Key, FL.



*Daphnella stegeri* McGinty, 1955. 23mm. 120', off Dry Tortugas.



*Fenimorea halidorema* (Schwengel, 1940). 25mm. 20' in reef area, N. coast, Jamaica.



*Fenimorea moseri* (Dall, 1889). 23mm. 120', Egmont Key, W. coast of Florida



*Fusiturricula jaquensis* (Sowerby, 1850). 49mm. 200', off Gulf of Venezuela.



*Fusiturricula maesae* Rios, 1985. 54mm. 300', off Rio de Janeiro, Brazil.

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 Kaicher, S. D., Card Packs for the Family Turritidae.

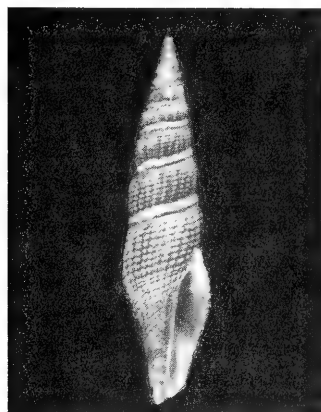
The intent of these centerfolds is not necessarily to distinguish among valid and invalid species, but to provide illustrations of taxa not popularly available, for the information of the collector.



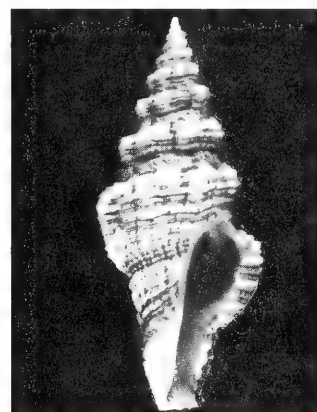
*Hindsiclava alesidota* (Dall, 1889). 53mm. 60 fms., off Texas.



*Hindsiclava chazaliei* (Dautzenberg, 1900). 39mm. 200' off Gulf of Venezuela.



*Hindsiclava tippetii* Petuch, 1987. 65mm. 120', off Rosalind Bank, Honduras.



*Knefastia hilli* Petuch, 1990. 58mm. 230', off Portobelo, Caribbean Panama. (Type locality)



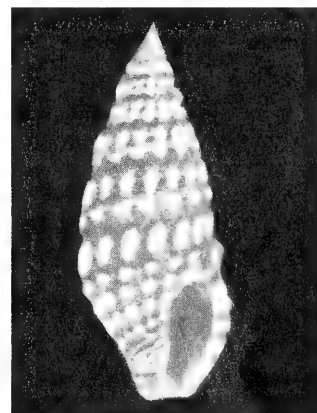
*Leucosyrinx subgrundifera* (Dall, 1888). 34mm. 490 fms., off Cape Hatteras, NC.



*Leucosyrinx tenoceras* Dall, 1889. 57mm. 225-250 fms., off Cape Fear River, NC.



*Leucosyrinx verrillii* (Dall, 1881). 34mm. 490 fms., off Cape Hatteras, NC.



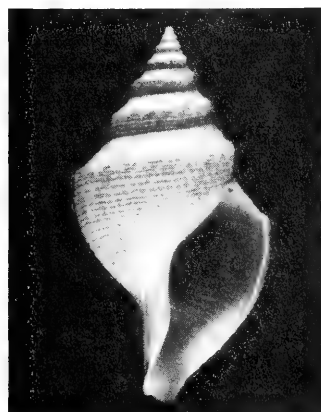
*Pilsbryspira zebroides* (Weinkauff). 12mm. 6', under rocks, Dominican Republic.



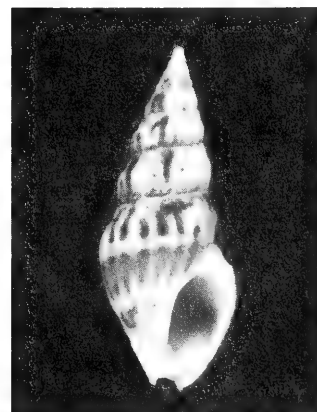
*Pleurotomella chariessa phalera* Dall, 1889. 44mm. 360', S. of Cape Lookout, NC.



*Pleurotomella edgariana* (Dall, 1889). 64mm. 280 fms., ESE of Southeast Pass, off Mississippi River.



*Pleurotomella bairdii* Verrill & Smith, 1884. 34mm. 1813 fms., off Delaware Bay.



*Splendrilla fucata* (Reeve, 1845). 23mm. 20', in sand, Bimini, Bahamas

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Fakatopere street scene.

photos by Emilio Garcia



Betty Jean Piech, Kathi Krattli and Juanita and Nece Cacioppo returning from shelling.

## A FRENCH POLYNESIAN ATOLL AND ITS MOLLUSCAN FAUNA

by Emilio Garcia

Ten years ago, friends with homes in Tahiti and its neighbor island, Moorea, urged me to make a trip to French Polynesia. I did not need much urging, particularly since I knew I would have stupendous hosts, so on my next holidays I flew to the South Pacific and began my discovery of the Society Islands.

One night, during one of the many social gatherings we attended, someone suggested I visit Manihi Atoll on the north-west edge of Tuamotu Archipelago where a resort had recently been opened. The person knew absolutely nothing about sea-shells but explained that it was totally virgin territory, and that was good enough for me. Besides, the relative geographic isolation of the archipelago promised an interesting molluscan fauna.

I was not disappointed. In five days I collected over 175 species of mollusks while walking the outer reef at low tide; and two years later, when some members of the Louisiana Malacological Society returned to Manihi, we collected over 250 species, almost exclusively on the exposed reef.

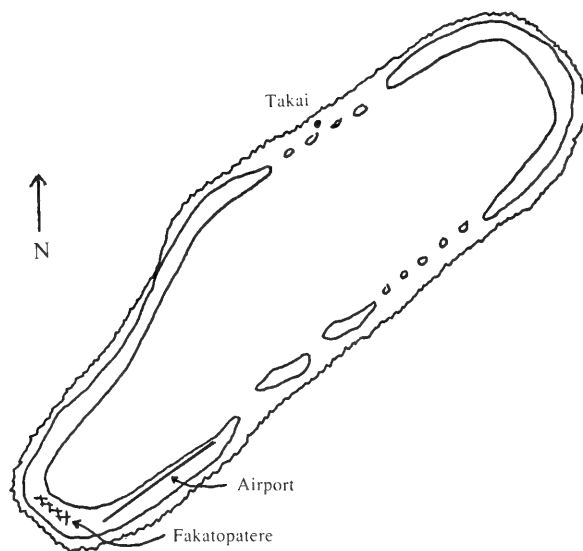
In 1983 a devastating cyclone passed through the Tuamotus and three friends of mine who went the following year found the reef almost devoid of shells. How long would it take for the reef to recuperate? No one knew, but we certainly cancelled our plans for a future trip there.

On we went with our trips here and there, until a few years ago when we stopped in the exquisite French Polynesian island of Moorea on our way back from a collecting trip to Fiji. Here we met a French shell collector, well known for his knowledge of the islands, who suggested we plan a trip to Takapoto.

Back in the States the research began, but five months later, when we finally decided to attempt the trip, all we knew was that it was part of the Tuamotu Archipelago some 500 miles northeast of Tahiti, about 50 miles east of Mahini, and that a plane left for there from Papeete, Tahiti's capital, once a week. We had known from the beginning that there were no hotels there — the Frenchman had suggested we would have to "rough it," whatever that meant.

Next thing we knew, there we were, crowding around the small ticket counter for the local airline serving the Tuamotus from Faaa Airport in Papeete. Our travel agent, who thought we were all crazy, had just given us the names of the families with whom we were staying, and told us we were the first tourists ever to be staying in Takapoto. (Towards the end of the trip we learned that the idea of eight tender-skinned, not-so-young-anymore Americans staying for two whole weeks in that remote place was so questionable that they had paid the villagers for

### TAKAPOTO ATOLL — TUAMOTU ARCHIPELAGO



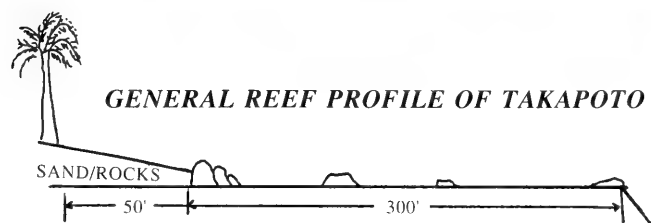
only the first night of our stay, as a sort of down payment, and would give them the rest of the money later if everything went alright.) Of course, no one would speak English in Takapoto, so we were counting on my limited French, and on Juanita Cacioppo's, who, like a true Louisiana "Cajun," could speak French before she spoke English. We did learn at the airport that the atoll had electricity and running water — quite a relief in more ways than one!

Our flight took us first to Rangiroa, the largest of the atolls, and then to Manihi where many of us sighed with nostalgia. Then, on a small plane, we reached our final destination — a picture-perfect atoll with a beautiful, bright-colored village, Fakatopere.

Everyone awaited us at the airport, loading us into an old truck and a much older jeep; then off we went to the townhouse for the reception: the mayor, prominent townspeople, musicians and singers, a welcoming speech, cakes and coconuts — what can I say? It was wonderful.



The reef at low tide.



Another pleasant surprise: one of the natives, Monique, spoke excellent English. Designated our official welcomer, translator and tour guide, she took her job utterly seriously. After the coconut water and cakes (listed in our itinerary as "welcoming cocktails"), Monique led us out of the townhouse, along the one paved street connecting the lagoon with the pier, for a tour of the town: quiet, narrow limestone streets, quaint and colorful houses, frangipani everywhere.

Afterwards, in our respective homes, exotic Polynesian names we'd been trying to learn, like Tatarata, Pimati Toti and Terai Maheahea, became real people. The homes varied from old, precyclone wooden structures populated by numerous people and other, more forgettable living creatures, to a beautiful chalet-like home beside the lagoon. The islanders themselves had decided who would stay where, so we put on our best faces for what we got. Though most meals were eaten at our "homes," we often gathered for evening meals at one of the homes or at the townhouse.

Since we were staying with four different families, I tried to find a place where we could all meet at night — the only evening spot for socials in Takapoto was a billiard room occupied entirely by two pool tables and the youth of the atoll, so I asked Nadine, the proprietress of a tiny refreshment stand near the pier if we could use her place at night for cocktails. Nadine, a young lady with a perennial smile, was delighted with the idea of capturing us for herself every night. Besides Nadine and her husband Andree, we shared those evenings with an immense sow who seemed attracted to us, perhaps because we still carried traces of fragrance from earlier shell-cleaning.

Besides meeting at "the Club" for an hour or two in the evenings, we strolled the starry, perfumed streets of Fakatopate, watched various sports events, or participated in our favorite nighttime activity, Polynesian dancing. The islanders were practicing nightly for an upcoming dance contest in Takaroa, the neighboring atoll, so as soon as we heard the drums, we'd join one of several dancing groups. To tell the truth, I don't know who was entertaining whom!

Indeed, our hosts had misgivings about being able to keep us entertained for two full weeks. They had no idea that eating, sleeping and entertainments were incidental to us. To their standard nightly question, "What do you want to do tomorrow?" we'd reply, "Go back to the reef. As early as possible."

And that we did. At times we didn't know who, or what, was going to take us to the selected locality the next day, but we all



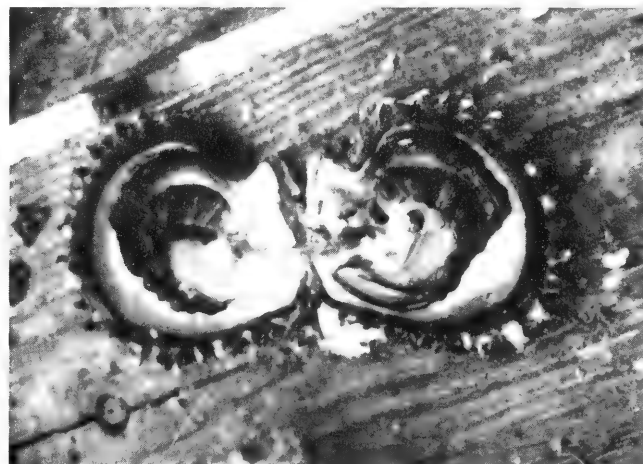
Marie, one of our hostesses, watching over us as we collect.

met at Terai Maheahea's early in the morning and, as if by a miracle, someone would show up with some sort of transportation and some sort of schedule, and take us where we wanted to go.

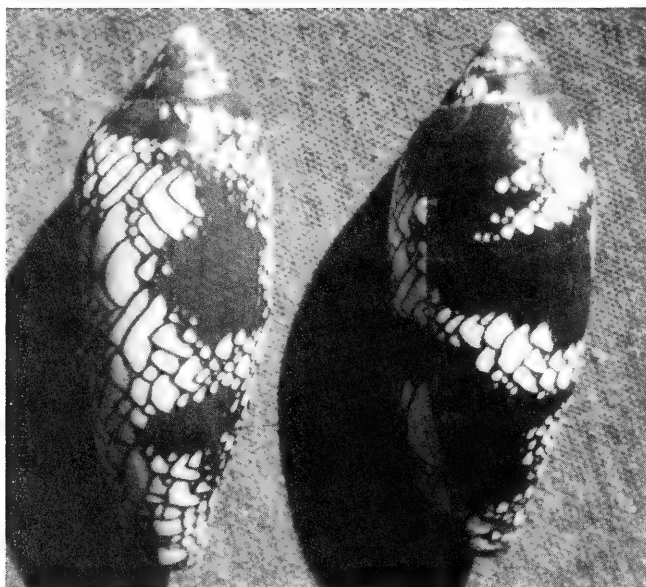
We didn't do much collecting in the Takapoto Lagoon. It has no openings, so whatever water it gets comes over certain sections of reef at high tide. It is, therefore, much poorer than Mahini Lagoon with its large, deep entrance. Pearl farms abound, but most of the young *Pinctada margaritifera* are brought from Takaroa. The most abundant bivalve is *Pinctada maculata*, which attaches itself to every possible surface.

We also learned that the southeastern coast of Takapoto is very poor in mollusks because it received the brunt of the 1983 cyclone. We concentrated our efforts on the much richer northwestern coast, from Takai to the airport (see map). This coast is composed of a somewhat steep shoreline of sand and coral rock. Where the shore meets the reef there are large boulders or a continuous wall higher than the reef itself (see reef profile). Then there are some 300 feet of very flat, hard reef without turnable rocks, before the edge of the reef.

The reef edge is some two feet higher than the inside, its densely honeycombed surface well-populated with *Patella flexuosa*, *Drupa ricinus*, *D. morum*, *Conus miles*, *Thais armigera* and *Vasum ceramicum*. All but the *Patella* were also abundant in the inside area, together with the somewhat less common, but still abundant, *Cypraea ventriculus*, *C. depressa*, *C. moneta*, *Mitra litterata*, *Vexillum cancellarioides*, *Morula grossularia*.



*Pinctada margaritifera* with pearl.

*Conus auratus*

*M. margariticola*, *Peristernia chlorostoma* and, now closer to shore, large and clean *Bursa bufonia*. Other rather common species in this large, central area were *Cypraea talpa* with very high, dark lateral calluses and specimens of the *carneola* complex that ranged from the typical form to elongated *bouteti*-like specimens, to very heavy, large specimens with pustules on the callus.

A different habitat had been created at the shore edge of the reef. The rocky walls and boulders offered a protected habitat where sand accumulated and where we found such species as *Lienardia rubida*, a beautiful bright-red turrid, *Epitonium perplexum*, *E. multicostatum* and, with patience, dead but well-preserved *Cypraea serrulifera*, *C. dillwyni*, *C. goodalli*, *C. irrorata*, and *C. cumingii*. Live specimens of these interesting cowries must be outside the reef, or hiding inside the innumerable small holes on the reef created by the sea urchins. Unfortunately, we never went night-collecting.

One evening we saw some unusual goings-on at the townhouse. Monique told us they were getting ready for the merchant ship "Aranui" to come to port. This ship brings cargo to the Tuamotus and to the Marquesas Islands from Tahiti, and takes back copra. It also accommodates a number of tourists, so Fakatopatero was getting its copra and handicrafts ready for the next day. Monique said that we should be at the townhouse bright and early because many shells would be for sale. All of this was very interesting to us, not only because of the shells, but also because at one time we had toyed with the idea of embarking on the "Aranui."

The next morning our group invaded the townhouse before the preparations were finished. Ignoring the handicrafts we went directly to the seashells but, as is usually the case, we had collected more species and better specimens than were on display. Or at least we thought so until a sharp-eyed member of our group discovered a large jar full of smaller shells that a woman in magnificent native garb had failed to display. When the jar was opened, out came hundreds of small cowries, mostly *irrorata*, *serrulifera* and *cicercula* (= *margarita* Dillwyn, 1817), but also a few *goodalli*, *cumingii* and a *dillwyni*. There were also several specimens of a cowry which I dismissed as *teres* until Juanita Cacioppo put a specimen in front of my nose and asked me point blank what it was. Suddenly I realized that they were very large *subteres*!

Eileen, the majestic-looking woman who had collected all of those shells, told us she had found them all high on the beach, the same beach we had hurried across so many times in the last few days to get to the exposed reef. Not only did she tell us which was

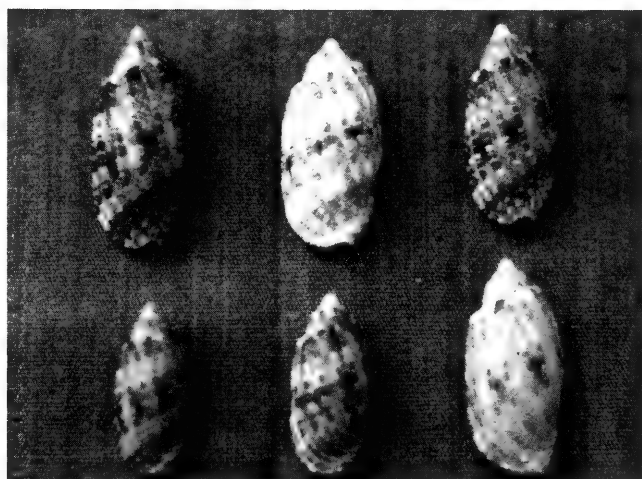
the best beach, but she offered to take us there that same morning. Her words were still floating in mid-air when we all did a vanishing act, rushing to our respective homes to change. Half an hour later we met, ready to follow her to the promised land.

Meanwhile the tourists had landed (of course we no longer considered ourselves in that category). When I rejoined the group I learned that someone from the "Aranui" was looking for me. On the "Aranui"? For me?! As it turned out, it was a young California woman whom we had met in the Yassawa Archipelago, Fiji, the year before. When she heard that Americans were staying at the atoll collecting shells, she knew it would be us. She said her group was to spend a couple of hours in Takapoto and then move on. And as we climbed on our vehicle to start that morning's adventure, we were all glad we were not on the "Aranui."

From that morning on we changed our collecting strategy, spending a great portion of our time inspecting the upper shoreline. The collecting was very hard because it was so hot, and so bright that we had to wear sunglasses, but the results were great. Not only did we find the species that were in Eileen's by-now-mythical jar, including some 20 *Cypraea subteres*, but also some *Conus auratus* and seven *Harpa gracilis*.

As we were finding these mostly gem-quality specimens of *H. gracilis*, we kept wondering about their habitat. We had read, of course, that they were sand dwellers, but the only inhabitable sand available in that wide reef was what collected in pockets between the boulders at the shore's edge. We dug in the sand until we reached rock. We fanned the sand. And yet nothing. It is true we had no opportunity to night-collect there, but not much could have crawled out of that sand after we had inspected it. Perhaps *gracilis* lives buried in the tiny sand pockets inside the unreachable small holes made by sea urchins. By the way, we found only four *Harpa amouretta*, and they were small. One might assume that since the best hiding places there are small, only the smaller specimens survive. This may also account for the proliferation of the tiny species of cowries. On the other hand, many of the specimens of the larger species of cowries — *talpa*, *ventriculus*, *carneola* — didn't even attempt to hide, and were found totally exposed.

Also on the high beach, we collected three beautiful specimens of *C. cassiaui*. The *cassiaui* from the Tuamotus, at least those from Manihi and Takapoto, are very interesting. Not as large or as wide as those from the Marquesas Islands, they look much more like *C. nucleus*, which in the Tuamotus are very common and also smaller than usual. They do differ from this species in their sculpturing and their dark purple coloration. The difference between the Tuamotus' and the Marquesas' populations of *cassiaui*, so relatively close together geographically, makes a strong case for the theory that *cassiaui* is only a form of the Hawaiian *C. granulata*.

*Harpa gracilis*.

All in all, the collecting in Takapoto was hard, but the adventure was exciting. Few of us before had spent long hours on our knees trying to make out the elusive shapes of tiny cowries, and none of us had expected to be turning rocks for hours on end, several feet above high water mark. On the other hand, what we were finding we couldn't find anywhere else outside French Polynesia, and the very personal experience we enjoyed would have been impossible anywhere else but this far-away paradisiacal atoll in the South Pacific.

## SPECIES OF MOLLUSKS COLLECTED IN TAKAPOTO, TUAMOTU ARCHIPELAGO

June 8-22, 1990

- Haliotis pulcherrima* Gmel., 1791  
*Patella flexuosa* Q. & G., 1834  
*Euchelus* species  
*Stomatella rosacea* (Pease, 1867)  
*Stomatolina sanguinea* (A. Adams, 1850)  
*Turbo setosus* Gmel., 1791  
*Astraea rhodostoma* (Lam., 1822)  
*Nerita plicata* L., 1758  
*N. polita* L., 1758  
*Puperita reticulata* (Sby., 1832)  
*Neritopsis radula* (L., 1758)  
*Tectarius grandinatus* (Gmel., 1791)  
*Planaxis lineatus* (DaCosta, 1776)  
*Cerithium tuberculiferum* Pease, 1869  
*C. torulosum* (L., 1767)  
*C. nesioticum* Pils. & Vanatta, 1906  
*C. egenum* Gould, 1849  
*C. rarimaculatum* Sby., 1855  
*Clypeomorus brevis* (Q. & G., 1834)  
*Rhinoclavis sinensis* (Gmel., 1791)  
*Bittium zebra* (Kiener, 1841)  
*Triphora clavata* (Pease, 1860)  
*T. corrugata* (Hinds, 1843)  
*Janthina janthina* (L., 1758)  
*Epitonium multicostatum* (Sby., 1842)  
*E. perplexum* (Pease, 1868)  
*Strombus mutabilis* (Swainson, 1821)  
*S. maculatus* Sby., 1842  
*Hipponix conicus* (Schum., 1817)  
*Cheilea equestris* (L., 1758)  
*Trivia hordacea* Kiener, 1836  
*Cypraea tigris* L., 1758  
*C. carneola* L., 1758  
*C. leviathan* Sch. & Sch. 1937  
*C. schilderorum* Ired., 1939  
*C. ventriculus* Lam., 1810  
*C. caputserpentis* L., 1758  
*C. helvola* L., 1758  
*C. moneta* L., 1758
- C. mauritiana* L., 1758  
*C. maculifera* Sch. 1932  
*C. depressa* Gray, 1824  
*C. scurra* Gmel., 1791  
*C. irrorata* Gray, 1828  
*C. serrulifera* Sch. & Sch., 1938  
*C. cumingii* Sby., 1832  
*C. teres* Gmel., 1791  
*C. subteres* Weinkauff, 1880  
*C. goodalli* Sby., 1832  
*C. talpa* L., 1758  
*C. isabella* L., 1758  
*C. staphylaea* L., 1758  
*C. nucleus* L., 1758  
*C. cassiaui* Burgess, 1965  
*C. bistrinotata* Sch. & Sch., 1937  
*C. margarita* Dillwyn, 1817  
*C. mariae* Sch. & Sch., 1927  
*C. dillwyni* Sch., 1922  
*C. childreni* Gray, 1825  
*Cymatium nicobaricum* (Rod., 1798)  
*Bursa granularis* (Rod., 1798)  
*B. cruentata* (Sby., 1855)  
*B. bufonia* (Gmel., 1791)  
*Colubraria nitidula* (Sby., 1833)  
*Quoyula madreporarum* (Sby., 1832)  
*Coralliophila violacea* (Kiener, 1836)  
*C. turrita* (Sby., 1832)  
*C. costularis* (Lam., 1816)  
*C. erosa* (Rod., 1798)  
*Aspella producta* (Pease, 1861)  
*Pteryonotus tripterus* (Born, 1778)  
*P. triquetus* (Born, 1778)  
*Thais armigera* (Link, 1807)  
*T. aculeata* Deshayes, 1834  
*T. intermedia* (Kiener, 1836)  
*Drupa morum* Rod., 1798  
*D. ricinus* (L., 1758)  
*D. elegans* (Brod. & Sby., 1829)
- D. speciosa* (Dunker, 1867)  
*D. clathrata* (Lam., 1816)  
*D. grossularia* Rod., 1798  
*Drupella ochrostoma* (Blain., 1832)  
*D. fenestrata* (Blain., 1832)  
*D. cornus* (Rod., 1798)  
*Morula granulata* (Duclos, 1832)  
*M. uva* (Rod., 1798)  
*M. margaritica* (Brod., 1832)  
*Maculotriton seriale* (Desh., 1834)  
*Nassa francolina* (Brug., 1789)  
*Cantharus undosus* (L., 1758)  
*Nassaria pusilla* (Rod., 1798)  
*Pisania decollata* (Sby., 1833)  
*P. fasciculata* (Reeve, 1846)  
*P. gracilis* (Reeve, 1846)  
*Pyrene varians* (Lam., 1822)  
*Nassarius gaudiosus* (Hinds, 1844)  
*N. concinnus* (Powys, 1835)  
*Latirus sanguifluus* (Reeve, 1847)  
*L. gemmatus* (Reeve, 1847)  
*Peristernia sowerbyi* (Melvill, 1888)  
*P. chlorostoma* (Wood, 1828)  
*P. nassatula* (Lam., 1822)  
*Oliva paxillus* Reeve, 1850  
*Vasum ceramicum* (Linne, 1758)  
*Harpa gracilis* Brod. & Sby., 1829  
*H. amouretta* Rod., 1798  
*Mitra coffea* Schu. & Wagn., 1829  
*M. ferruginea* Lam., 1811  
*M. cucumerina* Lam., 1811  
*M. columbelliformis* Kiener, 1838  
*M. assimilis* Pease, 1838  
*M. ambigua* Swains., 1829  
*M. fulvescens* Brod., 1836  
*M. multiplicata* Pease, 1868  
*Vexillum cancellarioides* (Anton, 1839)  
*V. millecostatum* (Brod., 1836)  
*V. speciosum* (Reeve, 1844)
- Conus ebraeus* L., 1758  
*C. chaldeus* Rod., 1798  
*C. coronatus* Gmel., 1791  
*C. nanus* Sby., 1833  
*C. sanguinolentus* Q. & G., 1834  
*C. sponsalis* Brug., 1792  
*C. catus* Brug., 1792  
*C. vexillum* Gmel., 1792  
*C. pertusus* Brug., 1792  
*C. miles* L., 1758  
*C. geographus* L., 1758  
*C. obscurus* Sby., 1833  
*C. tulipa* L., 1758  
*C. auratus* Brug., 1792  
*C. episcopus* Brug., 1792  
*C. retifer* Menke, 1829  
*C. tenuistriatus* Sby., 1858  
*C. cylindraceus* Brug., 1792  
*Terebra affinis* Gray, 1834  
*T. species*  
*Philbertia pumila* (Mighels, 1845)  
*Lienardia rubida* (Hinds, 1844)  
*Turridrupa cincta* (Lam., 1822)  
*Clavus pica* (Reeve, 1850)  
*Melampus flavus* Gmel., 1791  
*Arca ventricosa* Lam., 1819  
*Pinctada margaritifera* (L., 1758)  
*P. maculata* (Gould, 1850)  
*Chlamys* species  
*Spondylus varius* Sby., 1838  
*Chama pacifica* Brod., 1834  
*C. imbricata* Brod., 1834  
*Fragum fragum* (L., 1758)  
*Periglypta reticulata* (L., 1758)  
*Gafrarium pectinatum* (L., 1758)  
*Scutarcopagia scobinata* (L., 1758)  
*Asaphis violaceus* (Forskel, 1775)

## CONTEMPORARY CONCHOLOGY

by Walter Sage

The families Mitridae and Costellariidae are two of the most elegant and colorful groups of marine mollusks. Walter Cernohorsky and COA member Jean Cate have contributed much to our knowledge of miters. We have learned that the second part of Cernohorsky's researches will be published in **Monographs of Marine Mollusca**, with Dr. Rudiger Bieler as editor for this number.

Dr. Hans Turner of Switzerland, a new COA member, is continuing Cernohorsky's work and in 1989 in the German **Informationen Club Conchylia**, vol. 21, nos. 5-6, pp.31-62, published a paper on miters. This work, translated into English, was revised and reprinted in June 1990, entitled "Uncommon and New Mitridiform Gastropods from the Indo-Pacific Part 1." This 35 page paper contains 19 pages of text and 8 plates, each with 25 color photos and detailed captions. New species not illustrated elsewhere are here pictured and discussed, as are many type specimens. Those wishing to assist Dr. Turner in his studies may write to him at the Swiss Institute for Forest, Snow and Land-

scape Research, CH-8903, Birmensdorf, Switzerland.

Those interested in Conidae will welcome this preliminary announcement that three multi-volume works on this ever-popular family are in progress, one each in France, Germany and the United States. It is too early to be able to say just when copies will be available, but we will keep you posted on developments.

Dr. R. Tucker Abbott informs me that it is proper to consider *Conus jaspideus stearnsi* Conrad, 1869 as a valid subspecies occurring on the southwest coast of Florida. One of the criteria for recognizing a subspecies is its geographic separation from the nominate subspecies, in this case, *Conus jaspideus*. Intergrades exist between the two subspecies in the geographical areas where they overlap. I would like to see in the new books mentioned above some evidence from anatomical, genetic, and molecular research. The more supporting evidence we can accumulate, the firmer the basis we can have for our understanding of molluscan systematics and taxonomy.

Department of Invertebrates, American Museum of Natural History, New York.



## 1991 WINTER AND SPRING SHELL SHOWS AND OTHER EVENTS

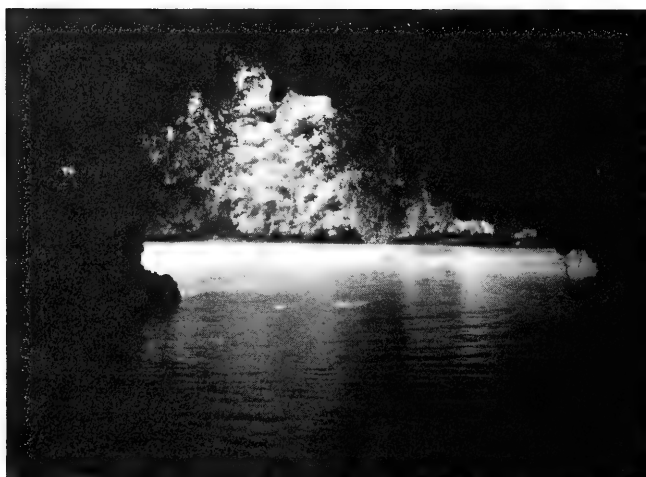
by Donald Dan, COA Trophy Chairman

Twelve shell events have been slated in the U.S.A. during the first six months of 1991, two less than we had last year. We welcome the return of the Broward (Ft. Lauderdale) show after a one year absence for exhibition hall renovation. Also returning is the Palm Beach Shell Show. Unable to locate a suitable exhibition hall, the Ft. Myers show will again be absent in 1991. Astronaut Trail Shell Club is taking a much-needed rest after hosting the 1990 COA Convention.

The biennial Sheller's Jamboree held by the Suncoast Conchologists will take place in 1991. Everyone seemed to have great fun at this event two years ago. The host club is already hard at work to repeat their tremendous success.

- |            |  |
|------------|--|
| Mar. 7-10  | <b>Sanibel Shell Fair</b> , Sanibel, FL<br>Anne Joffe, 1163 Kittiwake Circle<br>Sanibel, FL 33957 ..... (813) 472-3151   |
| Mar. 7-10  | <b>Palm Beach Shell Show</b> , West Palm Beach FL<br>John Spengler, 614 W. Bloxham Street<br>Lantana, FL 33462 ..... (813) 586-4963  |
| Mar. 14-16 | <b>Marco Island Shell Show XI</b> , Marco Island, FL<br>Joan & Robert Scribner, 1012 S. Collier, #112<br>Marco Island, FL 33937 ..... (813) 394-0399   |
| Mar. 15-17 | <b>Treasure Coast Shell Show</b> , Stuart, FL<br>Ted Jacaruso, 1964 NW Pine Tree Way<br>Stuart, FL 34994 ..... (407) 692-0270  |
| Mar. 22-24 | <b>Central Florida Shell Show</b> , Orlando, FL<br>Jake Dominey, 700 Tam O'Shanter Drive<br>Orlando, FL 32803 ..... (407) 894-3033   |
| Apr. 5-7   | <b>Georgia Shell Show</b> , Atlanta, GA.<br>Kenneth White, 2587 Ballew Court<br>Marietta, GA 30062 ..... (404) 977-0858  |
| May 25-26  | <b>Suncoast Conchologists Shellers' Jamboree</b><br>Clearwater, FL<br>Joan Pearson, 11710 Parkview Lane<br>Seminole, FL 34642 ..... (813) 397-7610<br>or Carolyn Petrikin ..... (813) 796-4117 |
| June 22-23 | <b>10eme Salon International du Coquillage</b><br>Dr. Ted Baer<br>Ch-1602 La Croix<br>Switzerland ..... (21) 393-771 or 207-371  |

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS



Dick Forbush shares with us this photo of "The Murex Cave," a "specimen" he collected while in Palau.

## BOARDTALK. . . .

From **WALTER SAGE, COA Treasurer and 1991 Convention Co-Chairman**: Thanks to all those members who sent in their dues payments for 1991. At this time (January 21), 385 memberships remain unpaid for 1991. Those members whose payments have not reached us by March 1 will receive a reminder notice and registration information for the July Long Island COA Convention. They will NOT receive the March issue of **American Conchologist** until payment for 1991 is received. Any questions on dues renewal and/or membership should be directed to Bobbie Houchin or myself.

We are moving ahead with plans for the July Convention and welcome help from any and all COA members. Donations for the auction are welcome and will be acknowledged. Early registrations will help us in our planning, and please note that you **MUST** make your reservations directly to the Huntington Hilton, using either number listed on the reservation form. We will monitor hotel reservations and your registration for the convention and make sure you are properly recorded. We are looking forward to one of the best conventions yet and urge you all to share **THE GOOD LIFE ON LONG ISLAND!!**

From **JOHN BAKER, COA Nominating Committee Chairman**: This year COA President Foglino has appointed the Nominating Committee well in advance of the Annual Meeting at the Convention. The Nominating Committee will submit a slate of officers as provided by Article VI, Section 2 of the Constitution. This year the slate will be printed on a ballot which will be placed in the registration packet of each attending member, with spaces provided for nominations made under Sections 3 and 4 of Article VI.

It might be well to cite the relevant sections here:

"Sec. 3. Members in attendance at the annual meeting may be nominated from the floor during the annual meeting by written petition signed by five members also in attendance. The nominees must signify a willingness to serve.

Sec. 4. Members who indicate their willingness to serve and are not in attendance at the annual meeting may be nominated by written petition. Any such petition shall verify the nominee's willingness to serve, be signed by not less than five (5) members, and be submitted to the Nominating Committee Chairman **PRIOR TO THE ANNUAL MEETING.**"

Your Nominating Committee is:

John A. Baker (407) 777-2116  
Sue Hobbs  
Herb Young

Our addresses are in the current Membership List.

Do give some thought to this matter. We want you to have the opportunity for an active part in nominating as well as electing your COA officials for the coming year.

## DON'T FORGET AMU 1991 — JUNE 30-JULY 5

The 1991 AMU Meeting will be a joint one with the Western Society of Malacologists. The Meeting will be hosted by the University of California Museum of Paleontology and will be held at Berkeley on the Clark Kerr Campus. For your elucidation, scientific papers on many aspects of molluscan studies and symposia on molluscan biogeography and molluscan taphonomy and on bivalves will be offered, while a barbecue, receptions, field trips, the auction, a bourse, and a banquet will entertain you at the lovely resort-style conference facility in the Berkeley Hills. For information call AMU President Carole Hickman (415) 642-3429 or WSM President Paul Scott (805) 682-4711.

## OUR COA CLUBS — A CLOSER LOOK

### Long Island Shell Club, Inc.

At a New York Shell Club Auction in 1975, Long Island members joked about being the majority of those who were present. Someone laughingly said, "Let's form our own club." A week later, some of them got together and formed the Long Island Shell Club.

Today, the club boasts a membership of about 150, consisting of scientific collectors, self collectors, Long Island collectors, armchair collectors, specializing collectors, travelling collectors, traders, several noted shell dealers, and shell crafters. Of course, their most famous collector is Hank Foglino, the current COA president, who has recently doubled his collection — he now has two shells!

The club newsletter, *Irradians*, comes out each month from September through June. Their club pin carries the *Argopecten irradians* logo with a Long Island map superimposed on it. Dues are \$8.50 (single) and \$10.00 (family).

These days, club members are meeting in "temporary" quarters. Therefore, if you should be in the area and would like to attend the meeting (now the third Wednesday of the month), contact Jon Greenlaw, (516) 421-5235, for current information and directions.

The club has held four shell shows so far, all of them successful, and exhibitors are hoping they hold many more. The funds raised from these shows, as well as those from their primary fund-raising event, the annual shell auction, went toward financing the monumental monograph which the club published in 1988.

The idea for a monograph on Long Island seashells originated nearly fifteen years ago from then-president Marty Lerner. The club had just been formed, the members were all new to each other, and many were beginners in shell collecting. Their treasury held but a few hundred dollars, and the club was struggling.

Now, more experienced clubs might have said this was going to be an impossible task, doomed to failure by inexperience and lack of funds, but the Long Island members had three things going for them — enthusiasm, a willingness to work together, and commitment. It took nearly fourteen years to get the finished product, including the nearly \$10,000 to pay for it, but today anyone may purchase the field guide, *Seashells of Long Island* by writing to Jack Odenwald, 426 Hunt Lane, Manhasset, New York 11030 for details.

During these years club members produced a slide show, with a narration tape, called "Shelling on Long Island," which they have sent all over the country to clubs which request it.

In 1988, at the urging of the Long Island Shell Club, Governor Cuomo signed into law a bill elevating the bay scallop, *Argopecten irradians*, to State Shell status. While acknowledging that this was "a largely symbolic and ceremonial act," Governor Cuomo hoped it would help focus attention on the "precipitous decline" of the scallop harvest (due to sewage, sludge, garbage dumping, and the brown tide).

It is these people who, having accomplished so much, will now undertake to host this summer's COA convention. Come meet them and enjoy their hospitality. And who knows? Perhaps Hank Foglino may even be persuaded to display his two-shell collection — what a rare treat THAT would be!

—Nancy Gilfillan

## WHAT DO YOU THINK?

### LIFE OF THE PARTY

by Glen Deuel

When I hear about shell clubs slowly dying, it raises mixed feelings in me. I've seen it more close at hand with some churches; the downfall of both, I think — shell clubs and churches — can be a similar "disease." Some organizations just won't accept changes and don't or won't try to attract new and younger people and new ideas. (Though I must say, being friendly overcomes a lot!)

As a retired-again aerospace engineer, I am still interested in facts and statistics. Recently, while making a list of COA members who have a shell-related business, I realized how lucky COA is to have such a large, sustaining and stimulating segment as these dealers. They spend most of their time supplying conchologists with shells, information, books, tours and dive trips, magazines, calendars, clothes, jewelry, pictures and art, sea life, and whatever else they want that is related to mollusks.

This group is commonly referred to as THE DEALERS. I think it is important to remember that their functions listed above, and others, serve as their livelihood, in whole or in part. Yes, they do their jobs with an intention of making a profit, to support themselves and their families, as do we all. OF COURSE they expect to get something out of their association with COA! Each of US expects to profit in some way from our membership also: to find bargains, to make contacts for trading and buying, to learn of new shelling locations. . . .

Some shell dealers travel the world over, often at great expense, trouble and danger, to satisfy our desires for exotic land and sea shells. Book dealers spend much time checking out suitable books and looking through endless lists to find appropriate references. Seashell artists often spend a disproportionate amount of time and effort at their art compared to the "low" selling price. Each dealer has his or her own set of difficulties to

overcome in order to better serve us, to make us happy.

Although these statements about business are to remind us to have more understanding and consideration for dealers, my main point is that they are some of the backbone and continuing fuel that keeps COA running. They are in the center of the action in their local shell clubs and in the COA, supplying leaders as they are able, serving as advisors, auctioneers, authors, experts, program chairpersons, shell show judges and lecturers.

Dealers bring exotic places and great shelling areas to those of us who are armchair collectors. And they give and give to endless requests for contributions to this auction or that one. They blend in and help with all the jobs. Some lend their resources on special occasions. For obvious reasons their burnout rate is slower than for most of us. They are friendly. I don't know what we would do without them. You could say they put "Life IN the Party" — COA, that is!



Jim and Linda Brunner at the October Gulf Coast Shell Show with their COA Trophy and their winning exhibit, "The Shelling Triad," which detailed and illustrated malacological history. Congratulations on another top-notch exhibit, Brunners!

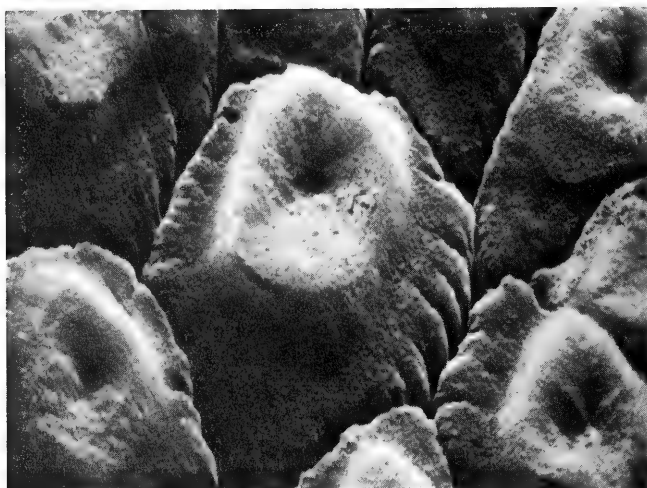


Figure 1: Prismatic shell, single prism in center, exterior surface. Treated with bleach to remove organic matrix that cemented the individual prisms to each other. Scanning electron micrograph, magnification 2,500 X.



Figure 2: Fractured surface of foliated shell showing individual laths. No cleaning treatment. Scanning electron micrograph, magnification 10,000 X.

## NEW BOOK ON THE AMERICAN OYSTER

by Melbourne R. Carriker

Since 1964, when Dr. Paul Galtsoff's well-known and much-used volume on **The American Oyster** appeared, the book has become a classic. Unfortunately, it is now out-of-print and somewhat out-of-date as well.

Fortunately, about 20 biologists are collaborating in the writing of some 20 chapters for an updated volume titled, **The Biology, Culture, and Management of the American Oyster**, to be published by the University of Maryland Office of Sea Grant, hopefully in 1991. Editors of the volume are A. F. Eble, V. S. Kennedy, and R.I.E. Newell.

I have completed my chapter, "The Shell and Ligament," and submitted it for publication. The chapter is based in large part upon a synthesis of my earlier investigations, those of other researchers, and Dr. Galtsoff's book.

Shells of oysters were known by earliest man long before Romans were growing the European oyster near Naples around 95 B. C. Earliest mention of shells of the American oyster in the western hemisphere was probably in the early 1600's. Within the last four decades, the macrostructure, crystallography, biochem-

istry, and cellular physiology of shell and shell calcification have been examined in increasing detail, reflecting, in part, the advent of new procedures and instrumentation.

My chapter on "The Shell and Ligament" presents a synthesis of the literature appearing primarily during the last four decades, on the ontogeny of form, structure, microstructure (see Figs. 1 and 2), mineralogy, biochemistry, and physiology of shell and shell formation in larval, spat, and adult American oysters, *Crassostrea virginica* (Gmelin). The analysis includes mineral and organic compounds of the valves, periostracum, hinge, and ligament, adductor muscle scar, shell-secreting epithelium, extrapallial space, shell deposition, biomechanics, weathering and dissolution, environmental effects, regeneration, anomalies, economics, and possible future developments. Where little or no information exists on the shell of *C. virginica*, I have drawn upon available knowledge from other species of the Family Ostreidae.

Cost of preparation of the chapter was supported in part by grants from the Conchologists of America and the University of Delaware Sea Grant College Program.

College of Marine Studies, University of Delaware, Lewes, DE 19958.

## NEW COA GRANTS

1991 mollusk research grants, up to \$1500.00 per applicant, are available to qualified persons, undertaking recent or fossil laboratory or field research work. The deadline for applications is May 1, 1991. **Mail to Dr. R. Tucker Abbott, Grants Chairman, Conchologists of America, P.O. Box 2255, Melbourne, FL 32902-2255.** Applicants must outline the proposed project, amounts and purposes for which the award will be used, including requested supplies, expendable equipment, living and/or travel expenses, publication or illustration costs. Please submit a short biography, educational status or pertinent job experience, and a letter of recommendation from a scholastic or professional source. Awards are judged by the COA committee by June 1, and are made only to citizens or permanent residents of the Americas, and do not cover salaries, overhead, permanent equipment, conference or meeting costs. If awarded, the recipient is expected to submit a popular written account of the project, suitable for publication in **American Conchologist**. — **R. Tucker Abbott**

## HAVE YOU SENT YOURS YET???

Your donations to the **1991 COA Auction**, that is. Sol Weiss and his committee are already receiving gifts for the upcoming fund-raising event, held at the Annual Convention each year to support COA's very important Grants and Scholarships Program. Any shell related donations are welcome: specimen shells, shell books, shell art, shell bibelots and trinkets, fabric, fossils, freshwater and land specimens, miniatures. . . look through your collection and see if you can't part with just a few nice duplicates, or something special from that last collecting trip of yours. **SEND ALL DONATIONS TO AUCTION CHAIRMAN SOL WEISS, 2562 RAMONA STREET, EAST MEADOW, NEW YORK 11554.** And do it soon. Don't wait till the last minute. It takes time to process the donations, acknowledge them, and put together an auction as big and successful as COA's annual event.

## BOOK REVIEWS

*Seashells (of the Northern Hemisphere)* by R. Tucker Abbott, 1990. American Nature Guides, Gallery Books, New York. 176pp., 4 3/4" x 7 1/2", color illust. \$9.98.

This compact field guide provides concise coverage of approximately 370 of the most frequently encountered shelled marine mollusks of the temperate regions of the Atlantic and northeastern Pacific Oceans. A brief introduction covers such topics as how and where mollusks live, collecting shells, and the Phylum Mollusca. A map defines the areas included — Alaska to Oregon, Labrador to Virginia, Scandinavia to Portugal.

Gastropods, scaphopods, chitons and bivalves are treated, with a few words of diagnosis introducing each family or major group. There is a short paragraph of description for each species, including common and scientific names with author and year of description, and size in inches and centimeters. The photos accompanying species accounts are crisp and good examples for identification purposes.

A glossary of terms precedes species descriptions and illustrations, which are followed by acknowledgments, a bibliography organized by region and specific groups, and an index to generic and common names. The spiral binding, waterproof plastic cover and handy size should facilitate use of this book. Collectors will be pleased to find in this volume many temperate species seldom illustrated elsewhere. A larger European edition is also expected to be issued. Dr. Abbott can be congratulated for providing a welcome, useful book at such a moderate price.

—Walter Sage

*Annotated Check-list of Mediterranean Marine Mollusks. Vol. I* Edited by B. Sabelli, R. Giannuzzi Savelli and B. Bedulli. 348 pp., paperback. Soc. Italiana Malacologia, Libreria Naturalistica Bolognese, via Valdonica 11/a, Bologna Italy.

This is the most complete and recent systematic catalog of all the marine mollusks of the Mediterranean. It is arranged by the most up-to-date classifications, and lists all the recognized synonyms of both genera and species, with authors and dates. It is a monumental work when one realizes that many of the Mediterranean species have acquired up to 60 synonyms created by past malacologists suffering from a "mihi itch," a propensity for naming new species still going on in the Americas. This book will serve as the backbone for most future research on the taxonomy of the central eastern Atlantic.

— R. Tucker Abbott

*Los Quintones de Puerto Rico* by Cedar Garcia Rios. 1990. 48pp, 17 text figs., paperback. Guías de Campo para la Identificación de Organismos Marinos de Puerto Rico [Field Guide to the Identification of Marine Organisms of Puerto Rico]. Series I.

If you're headed for Puerto Rico, or one of the other islands of the West Indies, and most of your collecting will take place along the intertidal shorelines, this compact little guide to the Chitons will make your trip worthwhile.

7" by 8 1/2" in size, the booklet has excellent photographs, full descriptions, correct synonymies and a key to the 19 best-known chitons of the Caribbean. The booklet is entirely in Puerto Rican Spanish, but so many of the technical words are so similar to the more international English language that shellers will have fun learning their "Spanish" and have little trouble identifying these fascinating rock-dwellers. This NOAA Sea Grant-supported booklet may be obtained free of charge by writing to "Centro de Educacion Marina Sea Grant, Estacion Postal CUH, Univ. de Humacao, Humacao, P. R. 00661. Do so, a couple of weeks before your trip, and add a "por favor."

— R. Tucker Abbott

## COMPENDIUM OF LANDSHELLS Solves a Malacological Mystery

by Walter Sage

Dr. R. Tucker Abbott's 1989 *Compendium of Landshells* is certainly the most comprehensive illustrated guide to land mollusks available to collectors. Though not intended to be a detailed taxonomic textbook on terrestrial snails, it will be the first reference on these mollusks consulted by collectors and many professional malacologists. There is such a wealth of information in this book that no one interested in land mollusks can afford to be without a copy.

One of my duties at the American Museum of Natural History involves curating our collection of mollusk type specimens and compiling data for publication of a catalog of AMNH mollusk types. When such a catalog was printed in 1969, among specimens that could not be located were the type lots of four species described by New York collector William A. Haines in volume 6 of the *Annals of the Lyceum of Natural History of New York*. In a paper entitled, "Descriptions of Four New Species of Terrestrial Shells, from Siam," read before the Lyceum on October 22, 1855, Haines named the following: *Cyclostoma housei*, *C. myersii*, *C. distortum*, and *Vitrina siamensis*.

It is known that Haines was an active collector in the mid-1800's and was involved in the early years of the American Museum. He published a catalog of his land shells and it seemed reasonable to expect that his type lots had been donated to AMNH with the rest of his collection. Abbott's pictures of *Rhiostoma housei* (Haines, 1855) on pages 29 and 42 of the new *Compendium* stirred my interest in finding the missing types, and I undertook a search of the AMNH collection. When I consulted Haines' catalog, I learned that he listed the species he had described as *Pterocyclos housei*, *Megalomastoma myersii*, *Cyclostoma distortum*, and *Helicarion siamensis*. This clue, coupled with Haines' original descriptions and figures of the first three of his species, aided my search. It was with considerable satisfaction that after several days of combing the collection, I was able to locate the original Haines lots, each housed in a different cabinet of the AMNH collection.

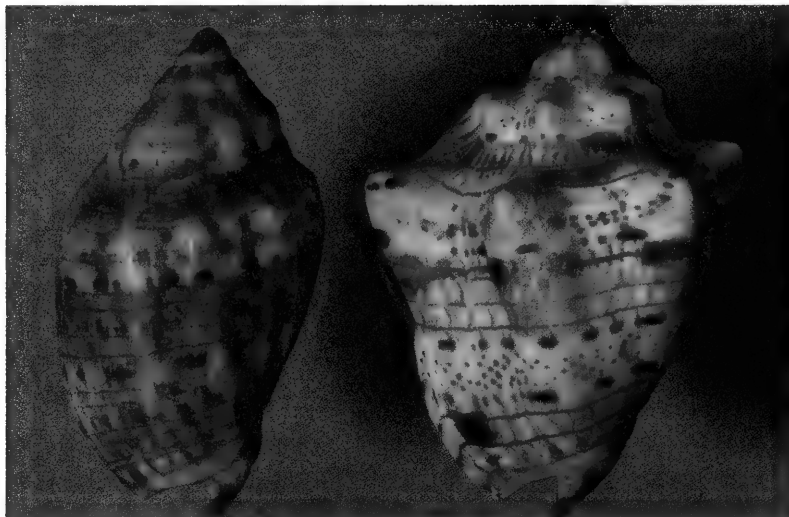
The type lot of *C. housei* contains five specimens, which are thus considered syntypes. The same is true for the two specimens in the type lot of *C. myersii*. *C. distortum* and *V. siamensis* are, to the best of my knowledge, each represented by a single specimen that can be confidently documented as being part of the Haines Collection, and as such can be considered holotypes, until proven otherwise.

This sort of detective work is a fascinating and often rewarding part of my work at AMNH. Recovering Haines' type material and being able to make the specimens available for scientific study can be directly attributed to the stimulus provided by *Compendium of Landshells*. I thank Dr. Abbott for contributing such a valuable reference and enabling me to solve the "Mystery of the Missing Types."

Department of Invertebrates, American Museum of Natural History, New York



The *Falsilyria demarcoi* complex from Honduras — Left: *Falsilyria demarcoi* (Olsson, 1965), netted by shrimpers, Roatan, Bay Islands. Center: *F. sunderlandi* Petuch, 1987, Utila, Bay Islands. Right: *F. hilli* Petuch, 1987, purchased from shrimpers on Roatan.



*Voluta musica* — Left: on black rocks, out of water, low tide, Lambeau Village, Tobago (southeast side). Right: 4' on clean white sand, Golden Grove, Tobago northwest side).

## WHY THEY LIVE WHERE THEY LIVE Stay-at-Homes

by Peggy Williams

P.O. Box 575, Tallevast, FL 34270

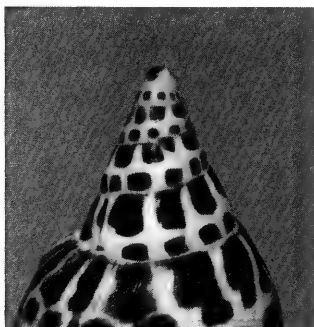
Whereas some mollusks are found in large areas of the world — even all over the world — others are confined to small geographical areas. These are called “endemic” organisms. But why can’t they colonize other areas?

When mollusks lay eggs, the eggs may develop in one of two ways: they may hatch to become free-swimming veligers, which move to a new home on the ocean currents, or they may develop fully inside the egg case and burst out to crawl away on their own. It is these mollusks with crawl-away young that are species unique to one area of the world.

Shells of mollusks that crawl away from the egg often have a very large protoconch (first whorl, on the very tip of the shell) in relation to the rest of the shell. Such a large, heavy shell could not be supported by the swimming lobes of veligers.

### Traveling the Hard Way

When such mollusks are born on a continental shelf, they may eventually disperse for a long distance along the coastline by means of crawling, generation after generation, as long and as far as the living conditions suit them. *Pleuro-*



*Scaphella junonia*, Gulf of Mexico. Note bulbous protoconch typical of “crawl-away” young.

## Part II

*ploca gigantea* (Kiener, 1840), the Florida Horse Conch, for instance, is found along the western Atlantic coast from North Carolina to Florida, all through the shallow sea known as the Gulf of Mexico, and south to the Yucatan. It does not, however, occur in the offshore Caribbean islands, the Bahamas, or Bermuda because it cannot cross the deep waters between.

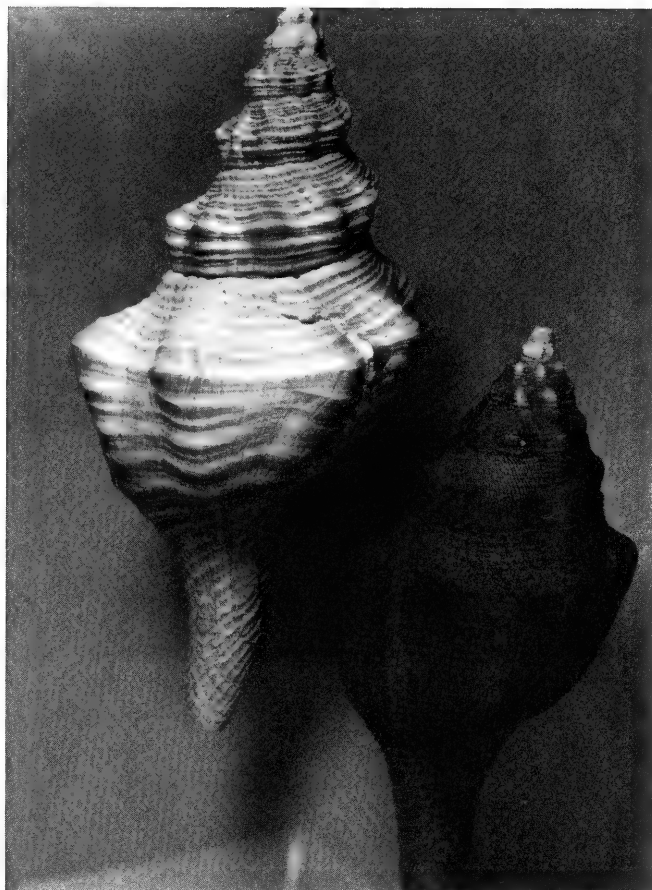
This limitation of the Horse Conch has probably saved the Caribbean Chank shell, *Turbinella angulata* (Lightfoot, 1786) from extinction or at least extreme stress, since it prefers the same habitat and eats the same food as the more aggressive Horse Conch. The Chank is found in the Bahamas and parts of the Caribbean but not on the U.S. mainland.

### Staying in the Back Yard

If “crawl-away young” eggs are laid near an island which is surrounded by deep ocean trenches, their opportunities to move to new territories are limited. Therefore, island and island chains like the Galapagos and the Hawaiian Islands have many endemic species in their waters.

Conversely, since some mollusks cannot move to their waters from other areas because of their “crawl-away young” beginnings, isolated islands may be poor in numbers of molluscan species. Bermuda, surrounded by deep ocean but bathed by the warm Gulf Stream, has many tropical species borne to it by the Gulf Stream currents, but lacks many other species which cannot crawl there from the neighboring continental shelf.

In other areas, the shells of one species may, over many years, become especially elongate or spiny in one location due to



Left: *Pleuroploca gigantea*, Sarasota Bay, Florida. Right: *Turbinella angulata*, 50' in sand, Cay Sal, Bahamas.

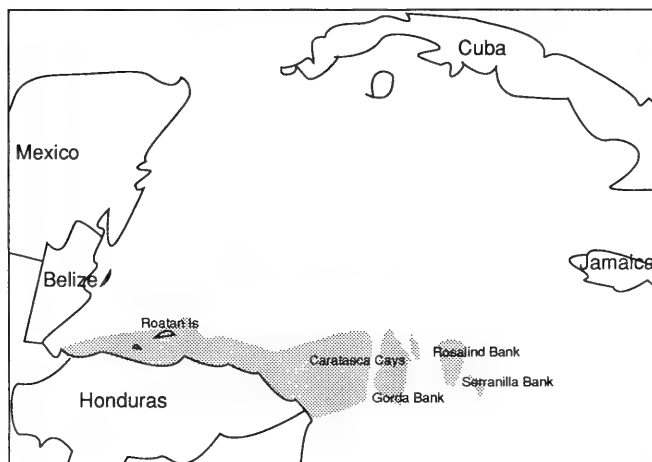
inbreeding or selective genetic variation, so that they may be given form names or subspecific names, or even be called entirely different species from the stock found in nearby but deepwater-separated territories. The study of *Melongena corona* Gmelin, 1791, the common Florida Crown Conch, is fascinating for this reason. It's even possible to guess what geographical area within Florida waters produced shells with no spines or with multiple layers of spines, elongate forms, or pygmy forms.

Differences in the shells may be due to bottom conditions or current and surf, however, and not genetic variation. I have found *Voluta musica* Linne, 1758 on both the windward (rough surf) and leeward (calm) sides of the island of Tobago. The calm water shells have heavy knobs on the shoulders and the shoulders themselves are much wider than those from the windy side. Also, the calm-water shells were in white sand and are much lighter in color than the ones from the black-rock-and-sand habitat on the windward side. It would be easy to suppose them to be entirely different species.

#### Brothers or Merely Cousins?

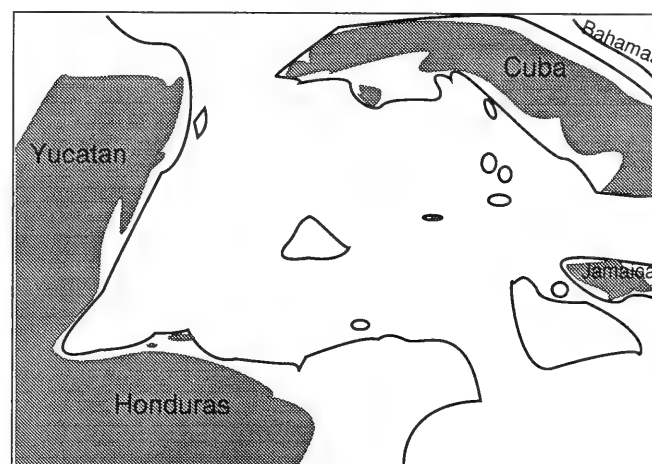
The problem of *Falsilyria demarcoi* (Olsson, 1965) is a knotty one. Off the Caribbean coast of Honduras is a group of islands and shoals, including Roatan, and several banks of shallow water and small cays separated by deep channels. In past geologic time, when the sea covered less territory, these areas were all part of coastal Honduras. As the sea level rose, they were separated, and the shallow-water species that once crawled along the continuous coast were also separated. Time and isolation, without fresh genetic material, have created populations very different from one another.

In the shallow waters of these banks are several forms of the *Falsilyria demarcoi* "complex." It's difficult to determine where each of the shells comes from, because most of them are collected by shrimpers who are either vague about exactly where



In shallow waters off Honduras — including the Bay Islands and, to the east, several banks of shallow water and small cays separated by deep channels — live the forms of the *Falsilyria demarcoi* complex.

Since *Falsilyria demarcoi* (Olsson, 1965) was discovered at Roatan in the 1960's, several other species have been named from nearby but deepwater-isolated areas. This group is still poorly understood, and all species may be merely forms and variants of *F. demarcoi* itself.

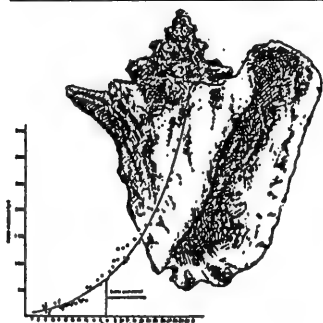


In the Pleistocene (and other eras), water levels were different than they are today; it is thought that, during a particularly low water period, the Honduran coast extended out to these present day banks. Animals with crawl-away young then would have been distributed all along this coast. When the water level rose, the land pulled away, leaving islands, banks and deep channels, according to the geography of the land. Animals which could not cross the deep water became differentiated over time from their brothers on nearby shoals because of their isolated and restricted gene pools.

they were working or unwilling to disclose the location of their trawling territory. However, it seems clear that each named form is found in a different bank or island area. The question of whether these various shells represent different species or merely a widely variable single species is being hotly debated.

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### PRIMER CONGRESO LATINOAMERICANO DE MALACOLOGIA

The Premiere Latin American Malacological Congress will be held at the Universidad Simon Bolivar in Caracas, Venezuela on July 15-19, 1991. A workshop on "Fisheries and Culture of *Strombus gigas*," symposia on general and applied malacology, poster presentations, oral presentations and malacological collections will be among the attractions of this convention held at the Anaeco Hilton Residence Hotel. Sure to be exciting to shell collectors are the field trips to marine biology stations at several seaside locations and national parks including the Paraguaná Peninsula and Los Roques Archipelago. For further information on travel, accommodations and registration, write to: Lic. Roberto Cipriani, Universidad Simon Bolivar, Apartado Postal 89.000, Caracas 1080, VENEZUELA.

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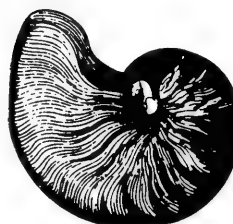
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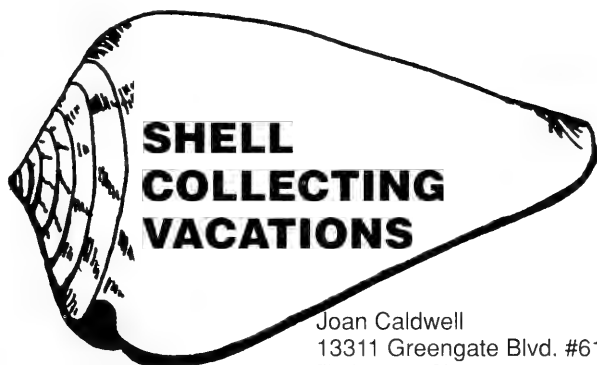


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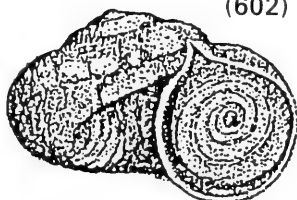
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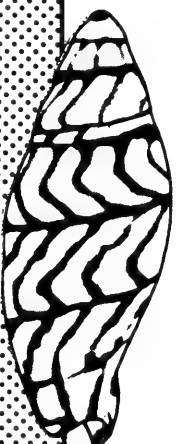

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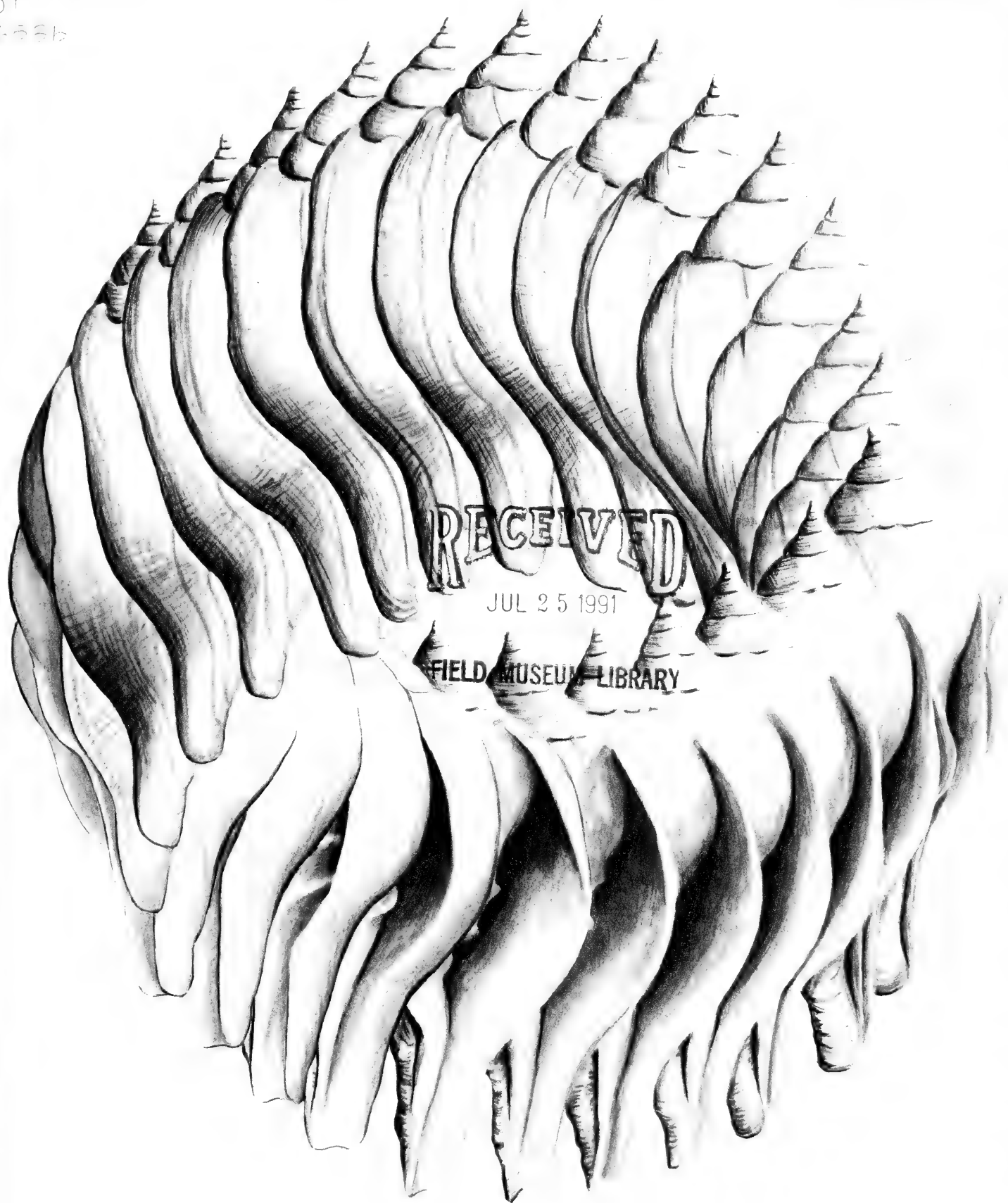
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 19, NO. 2

JUNE 1991



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. Our membership includes novices as well as advanced collectors, scientists and shell dealers from around the country and the world.

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#### MEMBERSHIP

Memberships run for the calendar year, January through December. Late memberships shall be retroactive to January. INDIVIDUAL (per year) \$12.50; FAMILY & CLUB \$15.00; CANADA & MEXICO \$15.00; THE AMERICAS (Air Mail Postage) \$20.00; OVERSEAS (Air Mail Postage) \$25.00.

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COVER: John Timmerman's witty study of the Indian or Sacred Chank Shell, *Xancus* (or *Turbinella*?) *pyrum* (Linné, 1758) teases the eye into a closer examination of its simple beauty.

## OOPS!

Sue Stephens writes to tell us that Al Deynzer's yellow bivalve in her painting for the March cover of *American Conchologist* was *Chama lazarus* Linne, 1758 from Ōkinawa, and not *Chama macerophylla* as stated in the cover credits. Our apologies to Al and to *Chama* fanciers everywhere.

Walter Sage points out that we incorrectly numbered Don Shasky's December "Wanderings." It was numbered VII, but should have been VIII.

## PRESIDENT'S MESSAGE

It seems like a short time ago that I wrote my first message thanking you for electing me as president of COA. Now, here I am, writing my farewells. It has been a full, interesting and fun year, and I feel that there have been some accomplishments. We now have a standard form which shell clubs use to apply as host clubs for our annual convention. These forms were designed so as to make the selection of a host club equitable and to avail maximum benefit to the membership. The Nominating Committee has been in place since last year in order to give interested members the opportunity to communicate with the committee. Our liaison with the club representatives has been efficient and fruitful. And our elected and appointed officers now meet bi-annually to better administrate the business of COA.

I have married into shells, so to speak, and have always regarded the shelling community as family. In all families, there are times of strife and misunderstanding, but in the end, the family always unites and prospers. So I believe it is with COA; it is growing and improving. I would like to thank all of you for your efforts and cooperation — you've made my job, and those of the other officers, easier. Let us all continue our efforts to enhance the Conchologists of America, and in the process, further conchology and malacology.

Sincerely,

**HANK FOGLINO**

## PIN MONEY



"The Coastal Bend Shell Club, Corpus Christi, Texas, are proud of their new pin," writes Jean Roe, the Coastal Bend COA Rep. "The cloisonné pin shows the club shell, *Amacea mitchelli*, in natural colors on a white state of Texas with a marine blue background."

Pin collectors (and Epitonium fanciers, as well!) may obtain their pins by writing to Jean at 105 Markham Place, Portland, TX 78374. The pins are \$4 postpaid.



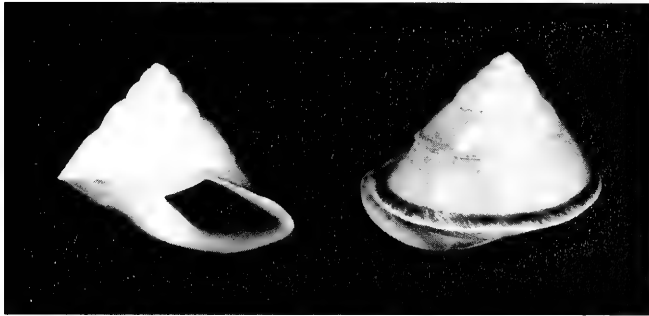
Lucy Clampit tells us that the **Houston Conchology Society** has a new club pin featuring the club logo, *Epitonium angulatum*. The pin is dark blue with white letters and a white and gold shell. You can get yours by sending \$4.00 to Mary Martin, 9005-A Imogene St., Houston, TX 77036. Or, Lucy says, they'll be on sale at COA in Long Island at \$3.00.



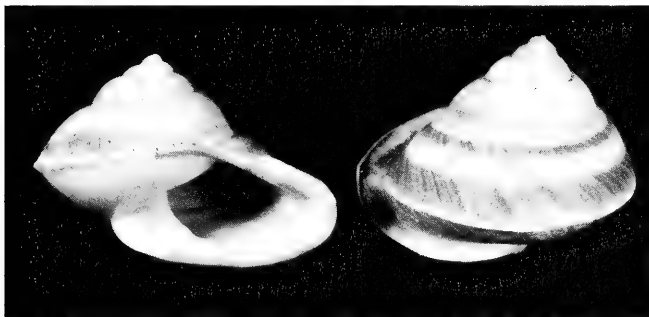
Carol Boswell writes that the **Palmetto Shell Club, Inc.**, has a new supply of club pins, for sale at \$3.50 plus \$1.00 postage and handling. The pins are available from Carol at 155 Dorset Drive, Columbia, SC 29210.

The **Shell Club of Mystic, CT** has recently acquired club pins which are available from Martha Bauduccio, Corresponding Secretary, 20 Williams Street, New London, CT 06320. The pin costs \$5.00 by mail, and Martha describes it as follows: "The pin is round with "The Shell Club of Mystic" printed around the top and "Connecticut" around the bottom. In the center circle is a raised *Crassostrea virginica* (Eastern Oyster), Connecticut's state shell.

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS



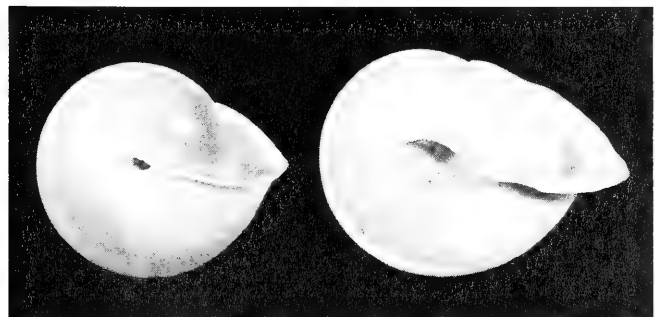
*Rhynchotrochus trochiformis* (Preston, 1902) — Biak Island, Schouten Islands, northwestern Irian Jaya, Indonesia; 21 & 22mm.



(right) *Rhynchotrochus grata grata* (Michelin, 1831) — Muswar Island, Geelvink Bay, Irian Jaya, Indonesia; 25mm. (left) *Rhynchotrochus grata magna* Fulton, 1910 — Muswar Island; 27mm.



*Rhynchotrochus pratti* Fulton, 1910 — Muswar Island; 24mm.



*Rhynchotrochus pratti* (basal view); (right) *R. grata magna* (basal view).

## RARE PAPUINIDS

Article and Photos by Richard L. Goldberg

The Camaenid group generically referred to as Papuina are well documented in the land shell literature. The group contains some of the more colorful and interestingly shaped terrestrial species. Although some are well represented in museum and private collections, others have eluded field researchers due to their limited range in inhospitable habitat in Papua New Guinea, Irian Jaya and surrounding archipelagos.

Irian Jaya, or western New Guinea, and its off shore islands provide the greatest challenge for collectors to amass a representative collection. The Papuinids inhabiting this range include some of the rarest of this group. Many of the specimens in private collections today were collected in the Post-World War II period. In the past 25 years very few specimens have been available. Among the more interesting are the sharply keeled members of the genus *Rhynchotrochus*.

The appropriately named *Rhynchotrochus trochiformis* (Preston, 1902) (Figure 1) is limited to the Schouten Islands in Geelvink Bay off north western Irian Jaya. It is differentiated from similar trochiform-shaped species inhabiting the same range by having the umbilicus almost totally closed off by the expanded basal lip, and by not having the granular surface sculpture found in its closest relatives.

*Rhynchotrochus grata* (Michelin, 1831) (Figure 2 right) is the closest species to *R. trochiformis*. It has a wider range in northwestern Irian Jaya, and tends to vary throughout its range. It is easily separated from similar species by its wide banding, rough granular surface sculpture (much like freshly shaved razor stubble to the touch), and the widely expanded and flaring peristome. The umbilicus is open, but shielded by the expanded basal lip. The specimen illustrated (Figure 2 left) from Muswar Island (= Mios Waar) in Geelvink Bay is referred to as the subspecies *R. grata magna* Fulton, 1910. The basal lip covers the umbilicus more than it does in the nominate form, and is less granulated, or totally lacks surface granulation, as well as having reduced or no banding. Benthem Jutting (1965) considers the two different enough for subspecific status. The general shape of the latter illustrated

specimen is much more depressed than that of the nominate form. *R. grata* of Bavay, 1908 is not this, but yet another similar species, *Rhynchotrochus pratti* Fulton, 1910.

The range of *R. pratti* (Figure 3) is limited to a couple of islands in Geelvink Bay. Its delicate-looking shell, semitransparent when held up to light, always has a thin brown band above the keel. The shell surface is not granular but shows distinct radiating growth striae. The umbilicus is slightly covered by the basal lip which is not nearly as expanded as in *R. grata* (Figure 4).

These are just a few of the many fascinating Camaenid land shells inhabiting what can be referred to as the land shell collectors' "last frontier."

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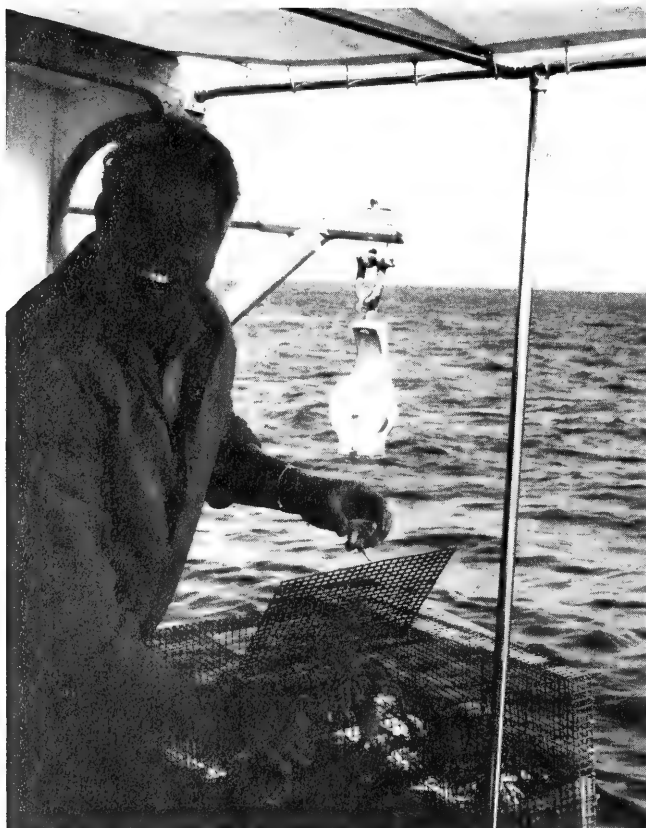
### REFERENCE:

Benthem Jutting, W.S.S. van. 1965. NON-MARINE MOLLUSCA OF WEST NEW GUINEA, Part 4, Pulmonata, 2. Nova Guinea, Zool. 32, p. 205-304.

### A NOTE TO COA CLUB REPS

As the newsletters from all of your clubs arrive each month, your editor reads them. And in reading them, she notices a growing trend for these newsletters to publish news of and information about COA. Good work, Club Reps! After all, WE know COA is a great organization, but many others don't know what an educational and entertaining and enriching organization COA is. Reading about it in their club newsletters is an excellent way for them to learn what all of us COA members already know: COA is great!





The look of pleasure is caused by a specimen of *Perotrochus quoyana* in first class condition.



Arthur Guest wiring in the weights. These pots with two weights are 35 pounds.



Three pots with rope and floats.

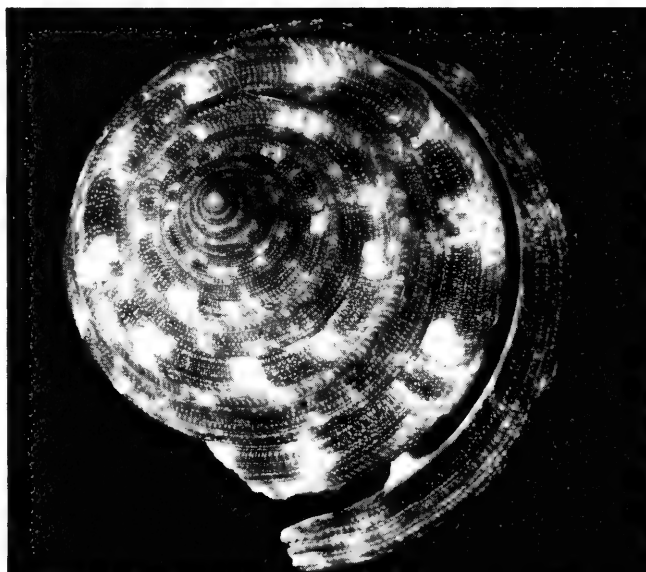
## DREDGING AND TRAPPING SHELLS IN DEEP WATER IN BERMUDA

by J. R. H. Lightbourn

My first effort toward trapping shells in deep water began in September of 1971 from my boat, the "Northstar," on the south shore of Bermuda. For the previous three years I had not found a single new shell to add to my Bermuda collection, and I got the idea of leaving the shallow water from a fisherman who said that he had found some strange shells in his lobster pots which were set in 250 feet. When I queried him as to what type of shells he found, his answers were vague, and unfortunately he had not kept the shells because they appeared beat up and unattractive.

Discussing the project with my friend and fellow collector, Arthur Guest, brought us to the decision to set our first pot in 600' using a standard fish pot lined on the bottom and sides with 1/4" mesh wire. The pot weighed about 45 pounds, being 4' square and 2' high. Getting it down was no problem; hauling it up was a back-breaking job. It took three of us nearly 20 minutes to get it to the surface, but the contents quickly made us forget our exhaustions. We found three of the slit shell *Entemnotrochus adansonianus* (badly broken), several large *Murex pomum*, six *Charonia variegata* and an equal number of *Cymatium pileare*. With this exciting start, we quickly re-set the pot and continued to haul and re-set until late October when we decided to quit for the season. At this juncture we had added another five species, including an excellent *Sthenorytis pernobilis*, five *Bursa ranelloides*, several good *Bursa finlayi* and one each of *Cymatium rubeculum* and *C. poulsoni*. A good specimen of *E. adansonianus* 3" in diameter was also taken.

The slit shells were a great prize and while I had heard that they were probably in Bermuda waters, I had never seen one. It was obvious that this largely untapped source of mollusks had much to offer, but the pots needed to be refined, and we needed a good winch



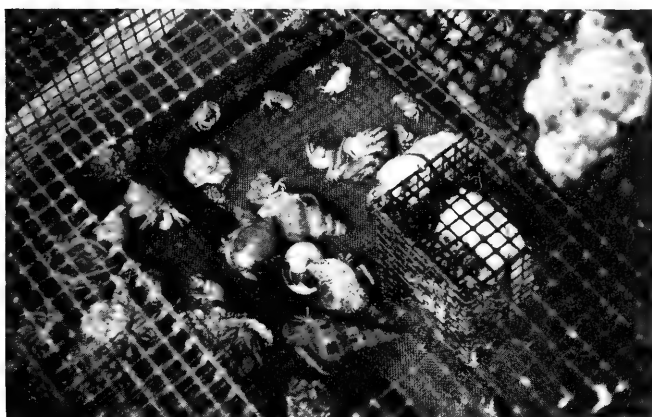
A good *Entemnotrochus adansonianus*.

installed. We quickly obtained the latter in Portland, Maine, and made it ready for use in the next season. The pots took somewhat longer, and we experimented with a total of seven different sizes and shapes until we found the suitable type which we still use today.

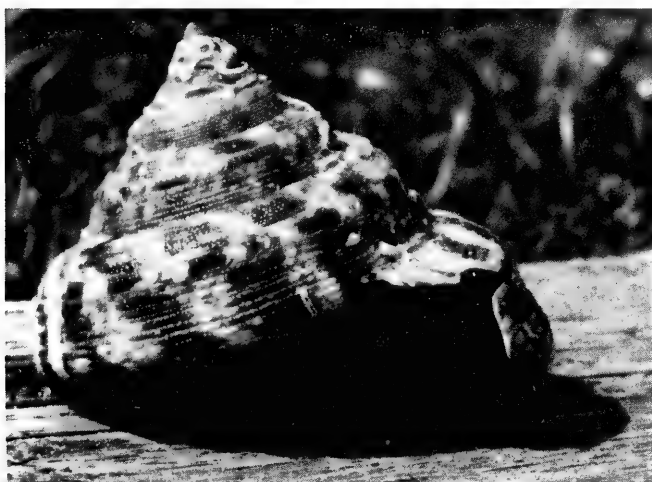
This pot is much smaller: 2' square and 1' deep with a 4" square entrance in the middle of each side. It is weighted with four pieces of 2" iron rod and weighs 60 pounds. The weight is necessary



In the foreground is the "North Star," and beyond it on the right is the "Polaris." "Polaris" replaced "North Star" in 1981.



A typical but good assortment of shells fresh from the bottom.



The biggest specimen of *Entemnotrochus adansonianus bermudensis* so far — 4-1/4" in diameter.

because of the strong tides on the south shore which would sweep lighter pots into deep water. We usually set three pots on Saturday or Sunday and haul them one week later. Sometimes bad weather requires that they stay one week longer, but as long as bait remains, pots continue to collect.

I should have mentioned earlier that all of our shells are crabbed specimens, each one brought in by a hermit crab that uses dead shells for its home and protection. So far, we have not collected one single live specimen of any species — all have been crabbed. Our bait consists of fish, meat, and bones. Experience to date shows that our best results have been at 900' to 1200', at which depths we have also found excellent specimens of *Perotrochus quoyana* of an average size of 2 1/4" in diameter.



The author with a "salad" from the sea.

Some success has also been enjoyed in dredging in depths of 250' to 350'. My partner, Arthur Guest, specializes in micro shells and he has added many new species to his collection from our deep water finds. Unfortunately the bottom all around Bermuda is very rocky, so the average life of a dredge is about three dredgings, making this a rather expensive form of collecting. Some improvement has been achieved by attaching a back line on the dredge with a trailing float on the surface. In addition to the micro specimens, we have also dredged several very good live specimens of *Spondylus americanus*. The live shells have usually been attached to another dead shell or to lumps of algae which collect on the bottom. One of our best finds, however, was a colony of *Siliquaria squamata* which grow in sponges. We dissolve the sponge away from the shell by placing it in a bowl of Lysol. The *Siliquaria* remain one of our most outstanding finds.

Through the years we have continued to set and haul our pots as weather permits and have now added over 50 new species (not counting the micro shells) including the following:

<i>Liotia bairdi</i>	<i>Bursa granularis</i>
<i>Natica guesti</i>	<i>B. thomae</i>
<i>Cyphoma aureocincta</i>	<i>B. corrugata</i>
<i>Phalium granulatatum</i>	<i>Gyrenium louisae</i>
<i>Eudolium crosseanum</i>	<i>Murex beaui</i>
<i>Sconsia striata</i>	<i>Coralliophila dalli</i>
<i>Casmaria ponderosa</i>	<i>C. sentix</i>
<i>Cymatium krebsi</i>	<i>Colubraria obscura</i>
<i>C. parthenopeum</i>	<i>Latirus brevicaudatus</i>
<i>C. pharcidium</i>	<i>Fusinus lightbourni</i>
<i>C. testudinarium</i>	<i>Morum dennisoni</i>
<i>Distorsio constricta</i>	<i>M. oniscus</i>
<i>D. perdistorta</i>	<i>Mitra fluviimaritima</i>
<i>Ranella olearium</i>	<i>Mitra swainsoni</i>
<i>Gyrina gigantea</i>	<i>Conus lightbourni</i>

One of the prettiest shells brought up is *Pterynotus lightbourni* which, as the name suggests, was named after me in October, 1979.



Some of the shells from a typical good catch.



Only nine specimens have been found to date, but I am hopeful that we may find others as we look in other areas around the Island.

Twenty years have now passed since the setting of our first pot, and during this period we have hauled 467 times. Literally thousands



My mini-museum of foreign shells of which I have about 6000 specimens.

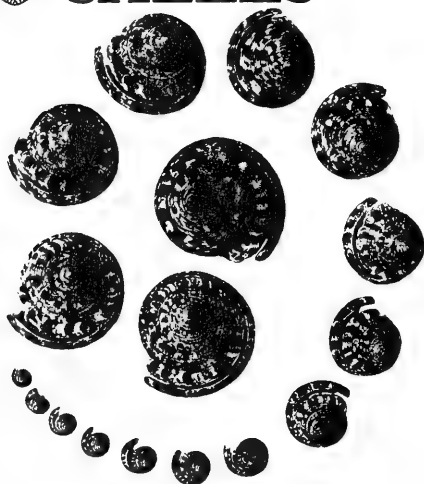


Some of the better specimens on display.

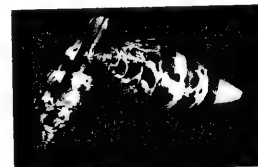
of shells have been brought to the surface, but only one in twenty is a good enough specimen to exhibit. In spite of this fact, Arthur and I have added over 200 species to the Bermuda listing, including four that are new to science. Of this number only about 70 are an



## BERMUDA SHELLS



J. R. H. LIGHTBOURN  
BAILEY'S BAY  
HAMILTON PARISH



13 MAY 1982

*M. Lightbourn*  
*A. R. H. Lightbourn*

Life cycle of the Slit Shell (*Perotrochus Adamsoniana*)

Official First Day Cover · Release Date 13 May 1982





R. Tucker Abbott giving the verdict while Arthur Guest and the author look on.

inch or over, the greater number being micro specimens which Arthur has identified and catalogued with painstaking accuracy.

The slit shells *adansonianus* and *quoyana* have steadily been collected, and today I have a growth series of the former of 25 specimens ranging from 3/4" to 4-1/4". Half a dozen good specimens of the latter have also been collected, but strangely, no small ones have been found. In 1983 the distinguished Japanese doctors Okutani and Goto wrote a paper on these two shells, declaring them each a subspecies; thus they each now carry the name *bermudensis* (Venus, Vol. 42, No. 4 [1988]).

In May 1982 the Bermuda Government for the first time issued four new postage stamps illustrated with four shells which we recovered from our deep water trapping.

Now that I have retired from business and have more spare time, I hope to trap in other locations around the Island in search of more new creatures from the depths. Who knows what the next twenty years might bring forth from nature's last frontier!

## COWRIES FOUND IN ALABAMA

by Doug Shelton

Alabama is not noted for its great variety of seashells. . . . During the past months scientists and collectors alike were surprised to learn that three species of cowries live in Alabama waters. They are the Atlantic Deer Cowry, *Cypraea cervus*, the Atlantic Yellow Cowry, *C. spurca acicularis*, and the Atlantic Gray Cowry, *C. cinerea*.

Last November, Dr. Thomas Hopkins at Dauphin Island Sea Lab trawled two juveniles of *C. cervus* off Orange Beach in 90 feet of water. Further study revealed that one *C. spurca acicularis* had been trawled from more than 100 ft. off Orange Beach in 1988. Recently, a local diver brought me four specimens of *C. cervus* he collected in 70-90 ft. on a barge off Perdido Pass in 1988. Last to come to light were three specimens of *C. cinerea* given to me by Ron Clark. These had been trawled from 280 feet off Orange Beach.

*C. cervus* is very common in Alabama. The status of *C. cinerea* and *C. spurca acicularis* is unknown, but they are certainly not as common as *C. cervus*.

Of the allied cowries, one beach specimen of the Suffuse Trivia, *Trivia suffusa* was found on the public beach at Gulf Shores. Divers from Dauphin Island Sea Lab have found the Flamingo Tongue, *Cyphoma gibbosum*, on gorgonian sea whips on offshore reefs.

(Reprinted from the new South Alabama Shell Club *Johnstonean*)

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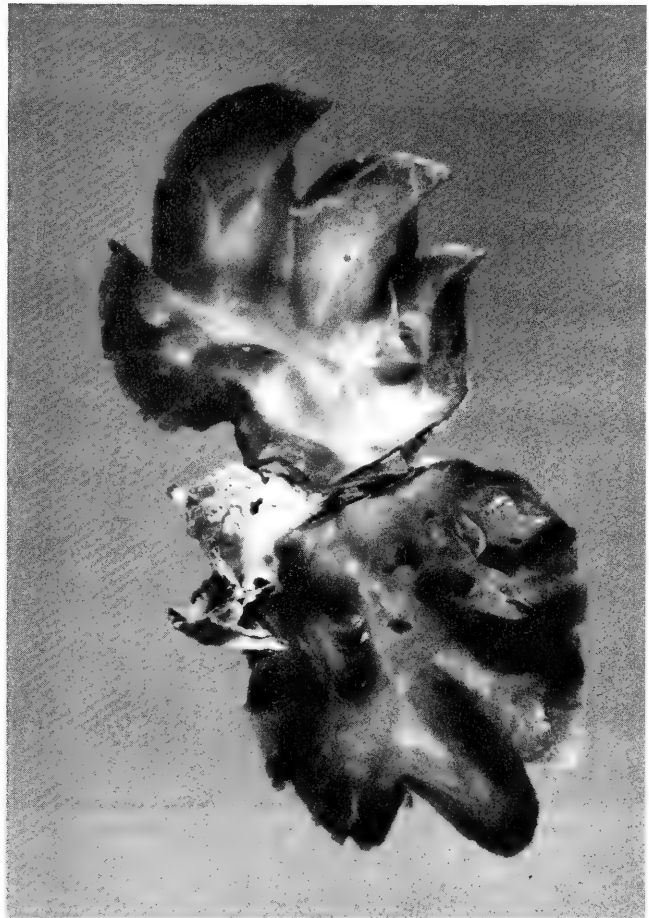


photo by Bob Purtymun

*Lophocrista cristagalli* from Queensland. Note the drill hole in the upper valve.

## NOTES FROM THE PAST

by Bob Purtymun

### Dive Log Entry:

Dec. 13, 1983 — Dive #21 — SCUBA 30-60' 55 minutes  
Helix Reef, off Townsville, Queensland, Australia

We were working along the thirty foot wide bottom of an underwater canyon. Twenty-five foot high coral walls on either side reached upward toward the surface sixty feet above. I ducked under an overhanging ledge and found about fifty specimens of *Lophocrista cristagalli* (Linné, 1758) attached to the cave-like roof. Only about 25% were alive; the others were agape. I was able to detach two of the dead shells. Examination, later on the boat, revealed that the shells had been drilled. Too bad! This was the last dive of the trip, so I was unable to return to look for the predator.

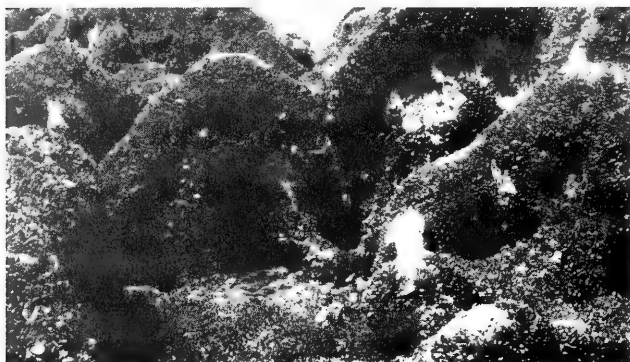
*L. cristagalli* is a widespread Pacific species. In 1975 I found a small cluster on the bottom of a large slab of dead table coral in the murky waters of Pago Pago Bay, Tutuila Island, American Samoa. In this case, I was able to collect the whole cluster of seven shells.

1200 Brickyard Way #407, Point Richmond, CA 94801





Rocky platform exposed at low tide, Playa Avanzado, about 12 miles southeast of Puerto Madryn, Golfo Nuevo, Argentina.



Colonies of *Mytilus platensis* covering rocks at Playa Avanzado.

## COLLECTING TROPHONS IN ARGENTINA THE VALDÉS PENINSULA

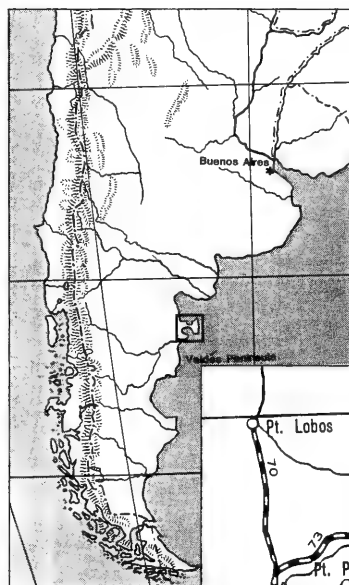
by Emily H. Vokes

If the scenery in Tierra del Fuego, southern Argentina, can be described by such words as magnificent, awe-inspiring, or just plain gorgeous, the terrain in the Valdés Peninsula has only one word that does it justice — wierd! The Valdés Peninsula is a strange protuberance on the east coast of Argentina, about half way between Buenos Aires, the capital in the north, and Ushuaia, the southern-most city in the south.

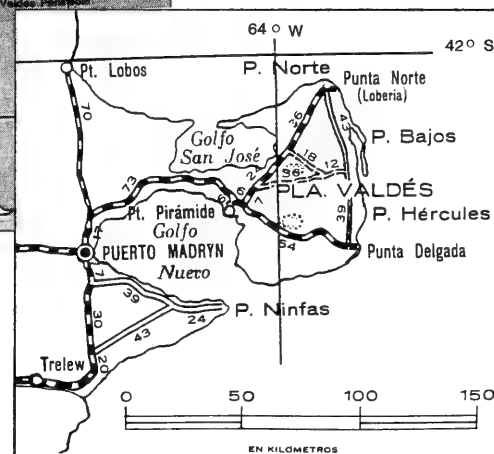
The peninsula is reached by flying to Trelew and then driving about 40 miles to the small city of Puerto Madryn, the "jumping-off place" for the Valdés Peninsula. This area, although at the same latitude as Boston, is a total desert and the only trees to be seen are those that have been planted by man. The natural vegetation is typical of a Middle Latitude Desert and looks about like Nevada!

The peninsula is composed entirely of a platform of flat-lying beds of marine limestone, Middle Miocene in age and highly fossiliferous in places. In overall outline it is a rectangle approximately 75 miles wide (east to west) and 40 miles long (north-south). But, cut into this neat geometrical shape are two large, almost completely closed bays, Golfo San José on the northern side and Golfo Nuevo on the southern side. Between these two bays is a narrow strip of land, the Ameghino Isthmus, which is less than three miles wide at its narrowest point. This constriction makes the area almost completely isolated and the Argentinian government has set the entire peninsula apart as a wildlife refuge.

There is good reason for this, as the Valdés Peninsula is home to an amazing array of both land and marine animals. On land one can see herds of guanacos (the South American camel) and rheas (the south American ostrich), as well as smaller creatures like the adorable hairy armadillo (yes, it is actually quite hirsute, with long hairs growing from between the armor plates) and the tinamou, a chicken-



Map of Argentina showing location of Valdés Peninsula



Detailed map of Valdés Peninsula

### Part II

sized flightless bird.

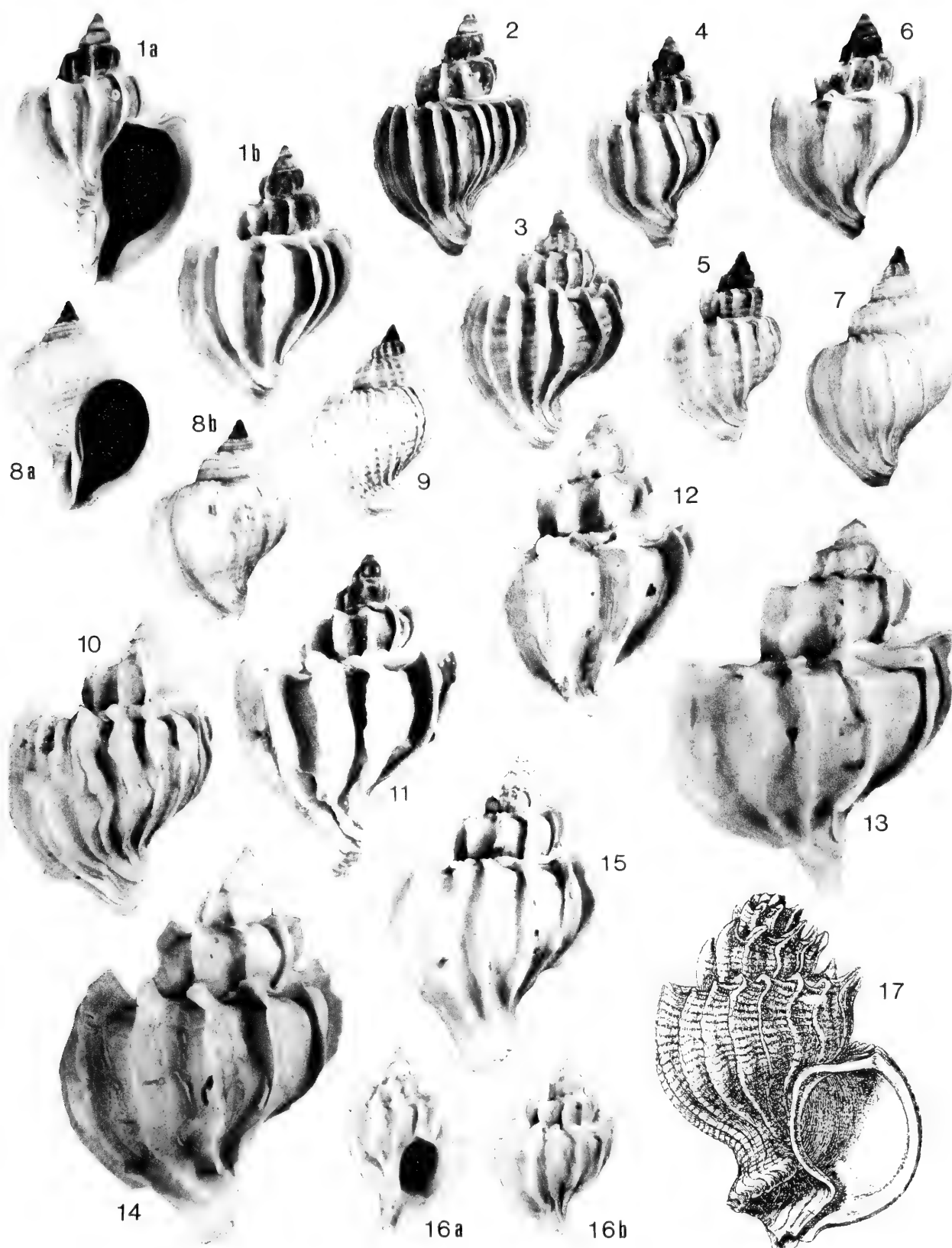
Along the coasts, one can study a variety of sea-birds, together with groups of elephant seals and sea-lions. During part of the year whales come into the bays to breed, providing lucky tourists the opportunity to see them at close range. Not present on the Valdés Peninsula itself but about 60 miles to the south of Trelew is Punta Tombo, the largest nesting colony of Magellanic penguins in the world.

All of this wildlife attracts great numbers of tourists to the region and, as a result, there are many first-class hotels in both Trelew and Puerto Madryn, as well as restaurants, rental cars, souvenirs, T-shirts — everything the average tourist might want.

But, of course, we are not the average tourist. And so we went to the Valdés Peninsula not to admire the wildlife (although I must confess we did while there) but to collect the molluscan fauna, which is equally as fabulous as the vertebrate fauna.

We now have made three trips to the peninsula, first back in 1970, as part of a whirl-wind jaunt around Argentina, when we made the first beach collections of Trophons that have been calling me back ever since. Two years ago we returned with an Argentinian Wildlife Tour that gave us a wonderful close-up look at all of the different animals, and also permitted us to do a minor amount of collecting under the guise of studying the birds or the seals on the beaches. But we wanted to get back on our own and have time to do some serious collecting, so last Christmas vacation we returned for a week to Puerto Madryn with the idea of finding the living colonies that had generated the wonderful beach-drift.

In Puerto Madryn, which is on the west side of Golfo Nuevo or the southern bay, our hotel (the Peninsula Valdés, by far the best in town) was right on the beach. All of this area has tremendous tides, and when the tide is out there is a vast expanse of lovely sandy beach exposed, with lots of good mollusks, even though you are



*Trophon* species from Valdés Peninsula: Figures 1-7, Playa Larralde (Golfo San José); Figures 8-9, Playa Avanzado (Golfo Nuevo); Figures 10-13, Isla Pájaros (Golfo San José).

Figures 14-16, *Trophon plicatus* (Lightfoot, 1786); Falkland Islands. Figure 17, *Trophon patagonicus* (Sowerby, 1846), from original illustration. All specimens x 1 1/4; *T. patagonicus* (?) natural size.

right in the midst of a thriving summer resort.

However, we did better by driving a few miles to the southeast to Playa Avanzado where, on the mussel-covered rocks exposed at low tide, one can find specimens of *Trophon geversianus* (Pallas, 1774) that are usually smaller and less ornamented than the typical southern form. There is a definite cline between the large-cancellate *T. geversianus* in the Tierra del Fuego area and *T. varians* (d'Orbigny, 1841), a massive, almost smooth form that occurs in the more northern part of Argentina around Mar del Plata. In between, at the Valdés Peninsula, the shells are small (in most cases, although we have a couple of battered beach specimens from Puerto Madryn that are over 70mm in height) and almost smooth, but otherwise are indistinguishable from true *T. geversianus*. All around Golfo Nuevo this is the only species of *Trophon* that occurs, always on the *Mytilus* beds exposed at low tide. The small size may be a function of slightly warmer water in Golfo Nuevo, for not many miles down the coast at Punta Camarones and Comodoro Rivadavia, the large typical form is found.

In the northern bay, or Golfo San José, *T. geversianus* is almost absent, and it is replaced by *T. plicatus* (Lightfoot, 1786). The best collecting area in Golfo San José is at Isla de Pájaros, which unfortunately is a bird sanctuary and the beach is supposedly off-limits. However, after "presenting my credentials" to the park ranger and promising not to disturb a single bird, we were permitted to collect along the fabulously rich high-strand line, which is simply covered with shells. It would have been nice to wade out and look under the rocks off-shore but we did not want to press our luck with the ranger.

The fauna here is dominated by one species of thin white bivalve, *Tellina petitiana* d'Orbigny, 1846. But there are also numerous gastropods, including two species of *Buccininops*, and species of the volutid genera *Adelomelon* and *Odontocymbiola*. But the most exciting shells on the beach, for me, are the large numbers of a species that I think is *Trophon plicatus*.

Farther east along the bay, at Playa Larralde, there is a public campground where the fisherman had brought in large numbers of *Chlamys tehuelchus* (d'Orbigny, 1846). But better were the off-shore rocks exposed at low tide. Finally I was able to wade out in knee-deep water that was surprisingly warm and collect live trophons to my heart's content. The specimens I collected are very strange. I assume that they grow up to be normal-looking specimens of *T. plicatus*, such as those we found in great numbers no more than ten miles down the same beach, but they do not look like typical *T. plicatus* when they are small.

The true *T. plicatus* is completely smooth between the pointed lamellar varices, with no spiral ornamentation. This is the easiest way to separate it from *T. geversianus*, which always has some spiral ornamentation. (As I noted in the article that preceded this one, the specimen of "*T. laciniatus*" [= *T. plicatus*] figured by Radwin and D'Attilio, 1976, text-fig. 130 is *T. geversianus*; Abbott and Dance, 1982, give a good figure of *T. plicatus* on p. 152.) But the specimens that I collected at Playa Larralde sometimes develop spiral cords between the varices. In the collection I made they range from totally smooth, typical *T. plicatus*-appearing shells to cancellate shells that look very much like *T. geversianus*! Mixed in among them are specimens with no varices that look like the smooth *T. varians* form found in Golfo Nuevo. What is going on here?

I wish I knew. All of the specimens were collected alive by me in one place, at one time, all living cheek by jowl, so to speak. In terms of environment, there is a slight difference between these animals and the ones of *T. geversianus* found in Golfo Nuevo, in that these snails were always in the tide pools **between the rocks**, in among the algae rather than on the *Mytilus* beds. I looked carefully at each specimen as I picked it up and all had identical opercula, with funny little red lines on them and often a completely smooth individual was clinging to a strongly variced one. If they weren't interbreeding they sure were damned friendly!

I thought perhaps I was seeing some kind of sexual dimorphism so when I got home I carefully checked every specimen for sex



Specimens of *Trophon geversianus* on mussel beds at Playa Avanzado.



Anonymous collector avidly seeking trophons under ledges of mussel-covered rocks at Playa Avanzado.



Harold Vokes collecting from the high-strand line at Isla de Pájaros.



Isla de Pájaros, Golfo San José, at low tide.



View of the beach at Isla de Pájaros.



Beach and rocky platform exposed at low tide, Playa Larralde, Golfo San José.

Specimens of *Trophon* (?) *plicatus* collected in tide pools at Playa Larralde.

(how do you tell the male snail? — by the blue booties, of course; seriously, it is very easy to recognize a male by the large penis located just to the right of the tentacles). The count was as follows: lamellar form — 27 males, 45 females; smooth form — 3 males, 11 females. So much for that idea.

The Golfo San José shells differ from *T. plicatus* in another way, as well. The interior of the shell is a dark mahogany, identical to that *T. geversianus*, in contrast to typical *T. plicatus*, which is usually white, or at the most pale pink inside. However, like *T. plicatus* the Golfo San José shells have a higher spire than the Golfo Nuevo shells and *T. geversianus* in general; although there are many exceptions to this rule and I have seen high-spined examples of *T. geversianus* and "*T. varians*" from localities all along the coast of Argentina.

Is it possible that the trophons of Golfo San José are really a local variant of *T. geversianus*? I have never seen any specimens to match them elsewhere. Or is the form a local variant of *T. plicatus*? Or are they living fossils surviving here in this "relict pocket"? The species that they most closely resemble is that named *T. patagonicus* by Sowerby (1846) for material collected by Charles Darwin during the Beagle trip. This Early Oligocene (San Julian Formation) species, which has pointed lamellar varices and a cancellate shell, is clearly the ancestor to both *T. geversianus* and *T. plicatus*.

Or is there actually a third species involved, which mimics the smooth *T. plicatus* in the adult stage? Such convergence is certainly not rare in the Muricidae. So, who knows? All I can say for sure is that at Isla de Pájaros there are small semi-cancellate shells (like those from Playa Larralde) on the beach together with larger smooth lamellate shells that look like *T. plicatus* to me, as well as large smooth non-lamellate shells that look like *T. varians*. At Playa Larralde I found only small shells, of both the lamellate and smooth varieties.

Whatever they prove to be, it was a wonderful experience to be able to collect so many individuals and examine their ecology while doing it. Incidentally, for those of you who are concerned that I might have "wiped out" the population, let me hasten to add that all my shells were collected from an area of a few hundred square feet, from among a mile or two of rocky platform exposed at low tide.

Other than the two (?three) species mentioned above, we found no other trophons in this area. However, there are many other species of mollusks and large white terebratulid brachiopods that were quite a treat, as well. In addition to collecting Recent mollusks, in the cliffs at Playa Larralde there are also wonderful fossil mollusks, including brachiopods very similar to those living in the same area today, numerous pectens, monster-sized oysters, and especially the most beautiful fossil bryozoans I have seen this side of the Mississippian beds in Alabama.

Thus, in this small peninsula one has an amazing array of living vertebrate wildlife, together with fossil and living invertebrates. Take all of this and mix in a starkly beautiful desert landscape, with a coastline that in most places consists of vertical cliffs rising a hundred or more feet from the most incredibly blue water, add bizarre geological phenomena like the lowest spot on the South American continent (which I can only assume is a gigantic sinkhole, 130 feet below sea-level and filled with a salt lake) and you can understand why the Valdés Peninsula is a wonderful place for anyone with any interest in any form of natural history.

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## WANDERINGS OF AN ITINERANT MALACOLOGIST X

### *The Payta Buffer Zone and Northern Peru*

by Donald R. Shasky, M.D.

For those of you who are unfamiliar with the geographic boundaries of the Panamic Province, let me set the stage. The province begins in the north at Magdalena Bay on the outer coast of Baja California del Sur, and, on the inner coast, with the head of the Gulf of California (Mar de Cortez). It extends south to Cabo Blanco, Peru. Sea farers, explorers, biologists, paleontologists and many collectors have come and gone from the region with molluscan treasures, from pre-Linnaean times to the present.

The northern extremity of the next province to the south, the Chilean Province, is Punta Aguja, Peru. Between Punta Aguja and Cabo Blanco is a stretch of coastline known as the Payta Buffer Zone, so named for the major city within the zone. Here the offshore water is quite cold due to the Peruvian or Humboldt Current sweeping up from Cape Horn. (This frigid current flows north with the coast of Chile, then northwest along the Peruvian coastline, and finally veers west off the coast of central Ecuador to bathe all but the two northernmost islands of the Galapagos Archipelago.)

This buffer zone between the two marine provinces is of great malacological interest since it harbors an endemic fauna. It was with these endemics in mind that Dr. Jim McLean and I set out for northern Peru in the spring of 1972 (not 1971, as I suggested in Part IX). I didn't anticipate, when I left Los Angeles, that during the next 23 days my weight would drop 21 pounds. More about that later.

Jim had gone on ahead to collect in the south. My intolerance level for cold is very high, so I make every effort to avoid cold water and cold weather; thus I waited to join him until he headed north.

Jim had been to Peru once before, when he had established contact with Dr. Mario Peña, a malacologist who taught biology at a university in Lima. Our plans were to fly from Lima 600 miles north to the inland city of Piura, where we would meet Dr. Peña, then taxi up to Tumbes, against the Ecuadorian border. Tumbes was to be our headquarters until it was time to go south to Payta, a coastal town just a few miles west of Piura. But when we arrived in Piura, we found that the city had been devastated by flooding. It was a year of El Niño.

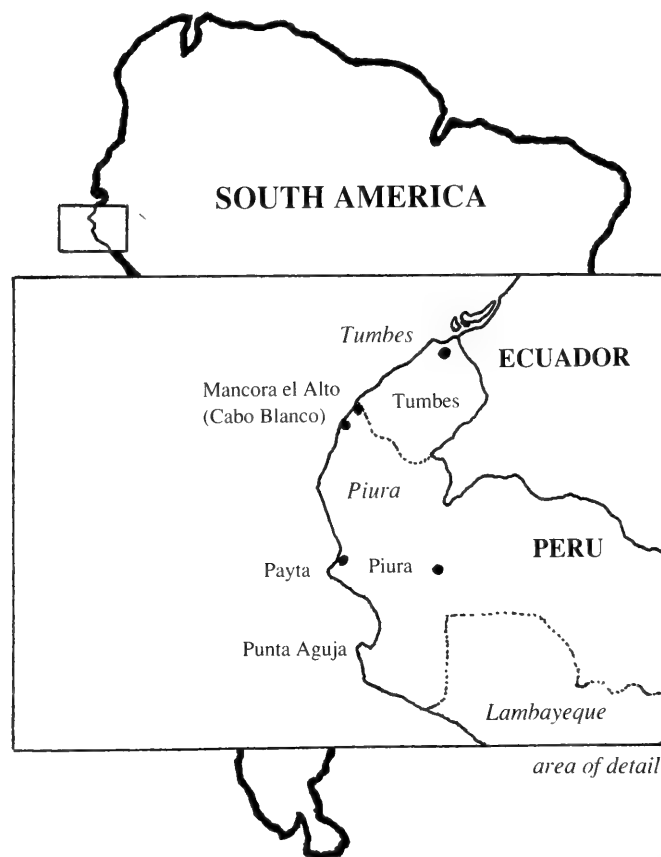
El Niño is a phenomenon that appears periodically when warm currents out of the north flow south and clash with the cold water of the Peruvian Current. The collision sets up atmospheric conditions that can cause torrential rains. The mountains to the east of Piura had been inundated, and this water raced through Piura on its way to the sea. Many streets were made impassable by standing water or very deep, broad ruts. Conditions were made worse by the fact that none of the streets were paved.

After overnighting in Piura, we boarded a taxi early the next morning for our continuing trip north. Several miles south of Tumbes was the fishing village of Caelata la Cruz. Here we persuaded Dr. Peña to ask the manager of the fishing company there if we could go out for a couple of days on his boats; after a brief discussion, he was successful — we got our permission.

Since the boats were small, it was decided that Jim and I would go together on one boat and Dr. Peña on another. The shrimp boats that I had been on in Mexico, Australia and Honduras work only at night, so I was surprised to find that here they worked around the clock. This meant that the nets would be coming up every three hours, so our sleep patterns would be very irregular if we were going to maximize our shell collecting. The only beds were bunks in the cabin — the dirtiest that I had ever seen. Our naps during the day were a constant battle with flies, and at night with cockroaches exploring our faces and arms.

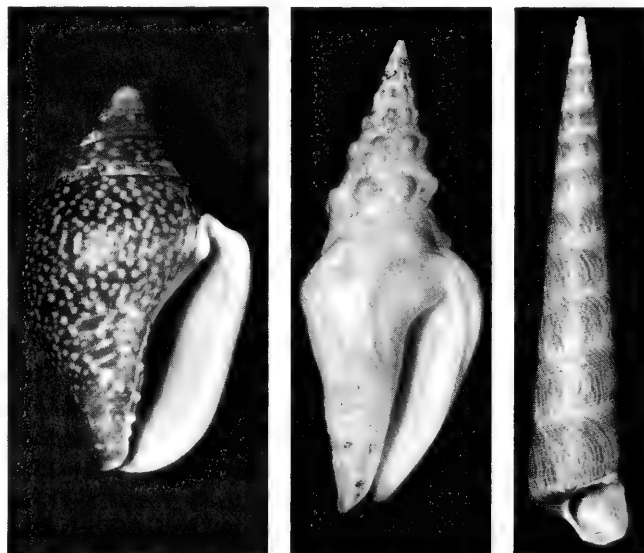
The galley was so small that the cook had to stand on deck to prepare all of the food. He had to turn or stir cooking food by reaching into the galley. In any case, much of what was prepared I just couldn't swallow. However, the cinnamon tea was delicious. Toilet facilities, as on most shrimp boats, consisted of hanging oneself off over the stern.

Our boat trawled in only 10-20 fathoms (60-120 feet), which did produce many shells, but few that we were excited about. *Turritella broderipiana* d'Orbigny, 1840 was perhaps one of the better species to



come up. But the best species was not even described until 1989, when Dr. Peter Jung of the Natural History Museum, Basel, Switzerland described *Strombina paenoblita* in his book, *Revision of the Strombina-Group (Gastropoda: Columbellidae), Fossil and Living* (p. 141-144).

After returning to port, we taxied on to Tumbes and to its port, Puerto Pizzaro, where the tide was out and we tramped the mud flats for about three hours. In one small area, there were many *Nassarius wilsoni* C. B. Adams, 1852 crawling in soupy mud. Adams described this species from Panama; although I have collected in Panama many times, I have never found it. So far, those from Puerto Pizzaro are the only ones I have ever found.



*Columbella paytensis* Lesson, 1830; *Strombina paenoblita* Jung, 1989; *Turritella broderipiana* Orbigny, 1840.

The next day we headed south to Payta with a short stop to collect at El Rubio, where the tide was poor and we found only a few shells on the reefs.

Arriving in Payta, we found that there were only two hotels, and that they were of "equal quality." Our room in the hotel we chose was incredible indeed! The ceiling was more than 20 feet high, and the only light was a 40 watt bulb hanging halfway down. The mattresses on our twin beds were very worn, lumpy, and perhaps three inches thick. The floor, at one time, had been covered with linoleum. Most of this had washed away, leaving a patchy, dirty black surface. One of the first things that I did was to spread newspaper out on the floor on which to walk back and forth to the bathroom. The bathroom is best left undescribed. The electricity was on only during the daytime, and the water in the bathroom ran only at night.

After settling in, we walked around the small harbor and found that the water was dirty and of very poor visibility. Jim decided to work his way down a piling on the pier and found a very good *Cymatium weigmani* (Anton, 1839) in doing so.

In the evening we attempted to find a good restaurant, but learned that such establishments in Payta were nonexistent. The little restaurant that we did go to had a very limited menu, which was not at all appealing. From my seat I could see that there was a large avocado in the kitchen, and I asked the waiter, in Spanish, for an avocado sandwich. He had no idea what I was talking about. After much confusing discussion, I learned that in Peru they did not use the word *aguacate* for avocado. Instead, they call it *palta*. So with that cleared up, I was able to get my sandwich.

The next day we took a taxi a little way out of town to a small beach. Although collecting was generally poor, despite a low tide, we did find one of the species that we coveted: *Columbella paytensis* Lesson, 1830. I also found a number of *Epitonium elenensis* (Sowerby, 1844) parasitizing sea anemones.

One of the common characteristics of most of the automobile and truck drivers who transported us here and there was their propensity for waiting to shift to a lower gear until the car began to lag, and then virtually die, an experience we endured several times a day. One night, our last night in Payta, we were to be taken to a small beach south of town, accessible only by driving away from the town and then turning

off onto a sand road that passed through the desert hills and a valley before finally arriving at the beach. Once we hit the valley, the sand was deep. Our driver was not about to set any precedent about shifting gears, so he didn't even attempt it until the car stalled and we were hopelessly mired in the sand. It was 1:30 in the morning of a very dark night, and we were several miles from town and about a mile and a half from the beach. If Jim and I took off, we could become lost in the dark. If we stayed with the car, there was a possibility of being rescued. In any event, we had to reconcile ourselves to the fact that we would miss the low tide.

Forty-five minutes later, a flatbed truck came through, headed for the beach. He had no chain to pull us out, but did offer a ride to the beach. We took it! When we got there we found a tiny village and the tide almost full. So much for shelling. There was no way back to Payta that night and it was chilly. We had two choices, as we saw it: a) to stand up the rest of the night, and b) to curl up in a ball on the damp sand. We chose the latter, and I was lucky enough to find a brick for a pillow. I am sure we both dreamed about how much better our filthy hotel room would have been, how luxurious the shrimp boat with the flies and the cockroaches seemed in comparison.

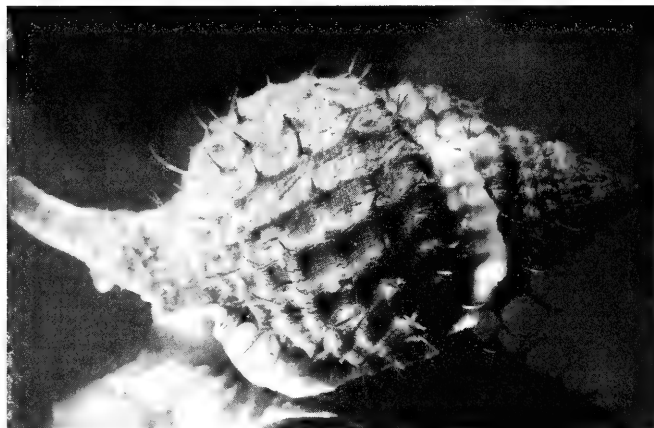
We did get back to Payta after daybreak, cleaned ourselves up a bit, and struck out for the market to see if we could find the makings for breakfast. We were overwhelmed with the blankets of flies that covered everything. We then remembered that there was no potable water to safely wash anything we purchased, so we did an about-face and beat a hasty retreat. It was such markets and restaurants all through back-country Peru that produced a "natural" version of liposuction which had drained away my 21 pounds.

Late that afternoon, we returned to Piura and caught a plane back to Lima.

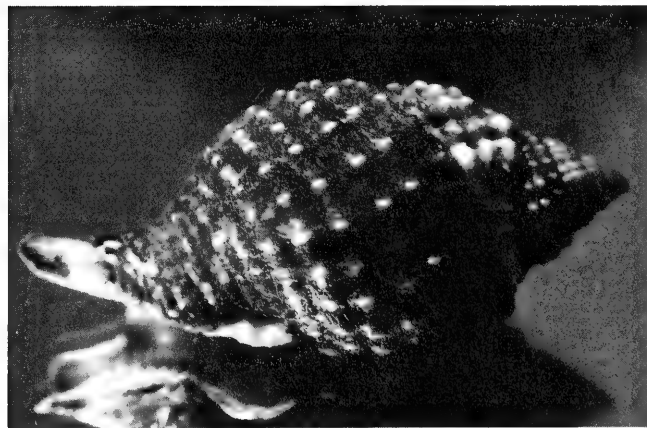
Would I do it again? Of course! But I would rent a car and make sure that I had sufficient drinking water and enough food for a short famine.

As I have been preparing this "Wandering," I have also been packing to go diving on Majuro and Namu Atoll in the Marshall Islands. Perhaps this will provide experiences worthy of the story of what man will (or won't) do for shells. Tune in next time and see.

834 West Highland Avenue, Redlands, CA 92373



*Distorsio clathrata*



*Distorsio robinsoni*

## A QUICK COMPARISON OF *DISTORSIO CLATHRATA* AND *DISTORSIO ROBINSONI*

by Ted Kalafut

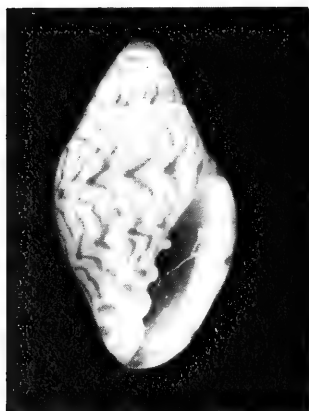
Two Caribbean distorsios, *Distorsio clathrata* (Lamarck, 1816) and *D. robinsoni* Petuch, 1987, can at first glance, be easily confused. By the time these shells reach the market, they usually have been stripped of their periostracums, which, in this case, can be all-important in identification.

As these photos clearly indicate, *D. clathrata*, common in the Gulf of Mexico, exhibits distinct tufts in the periostracum. The more southern *D. robinsoni*, usually from Brasil, always has a very short and velvety periostracum.

11630 Hamlin Blvd. # 102, Largo, FL 34644

# CARIBBEAN MARGINELLIDAE

by Bob Lipe and Kevan Sunderland



*Dentimargo* sp. 5mm. 50', SCUBA, Utila Island, Honduras. Coll. Leslie Crnkovic.



*Dentimargo aureocincta* (Stearns, 1872). 4mm. Screened on grass flats, Tampa Bay.



*Dentimargo eburneola* (Conrad, 1834). 7mm. West Coast of Florida and Florida Keys.



*Eratoidea* cf. *watsoni* (Dall, 1881). 11mm. 325 fms. off Cuba.



*Pachyathron cypreoides* (C.B. Adams, 1845). 6-8mm. Live in rubble, Aruba. Coll. Rick McCarthy.



*Persicula calculus* (Redfield, 1870). 7-10mm. 20' dredged; 8-15' by snorkel. Grenada.



*Persicula crysmellina* (Redfield, 1848). 5-7mm. 3' in sand, ABC Islands. Spots are variable.



*Persicula interruptolineata* (Muhlfeld, 1816). 5-6mm. 40', SCUBA, Tobago. Coll. Linda Zylman.



*Persicula muralis* (Hinds, 1844). 10 mm. fresh dead, Aruba.



*Prunum* sp. 9-10mm. 40', SCUBA, Utila, Bay Islands Honduras. Shallow water in Roatan.



*Prunum* sp. 25-31mm. Trawled, Guajira Peninsula, Colombia.



*Prunum amabile* (Redfield, 1852). 15mm. On shallow grass flats, Bahamas.

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 Kaicher, S. D., Card Packs for the Family Marginellidae.  
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The intent of these centerfolds is not necessarily to distinguish among valid and invalid species, but to provide illustrations of taxa not popularly available, for the information of the collector.



*Prunum canillum* (Dall, 1927). 15mm. 960 meters, trawled by research vessel. Off east coast of Florida.



*Prunum lipei* (Clover, 1990). 17mm. Dredged in coral, N. peninsula, Yucatan.



*Prunum marginatum* (Born, 1778). 18-24mm. Dredged, Colombia.



*Prunum prunum* (Gmelin, 1791). 23-33mm. Shallow in mud. Venezuela. Gray with yellow and white lip.



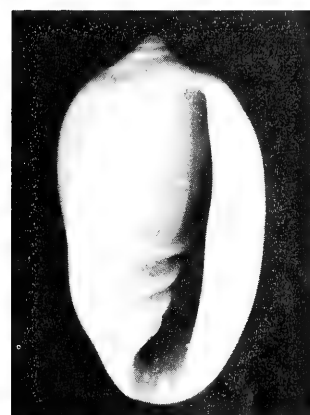
*Prunum pulchrum* (Gray, 1839). 21-24mm. Trawled, Colombia.



*Prunum storeria* (Couthouy, 1837). 15mm. Margarita Island, Venezuela. Gray with yellow lip.



*Prunum succinea* (Conrad, 1846). 11-15mm. West coast of Florida. Syn.: *Hyalina veliei* (Pilsbry, 1896).



*Prunum storeria leonardhilli* Petuch, 1990. 15-19mm. 120', dredged. Bay of Porto Belo, Panama. Coll. James Ernest.



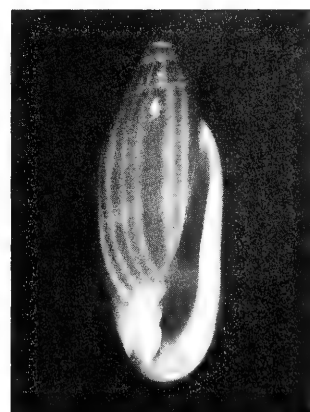
*Volvarina* sp. 6mm. 50 fms., dredged. Florida. Gold and white.



*Volvarina* sp. 10mm. Roatan Island, Honduras. Coll. Leslie Crnkovic.

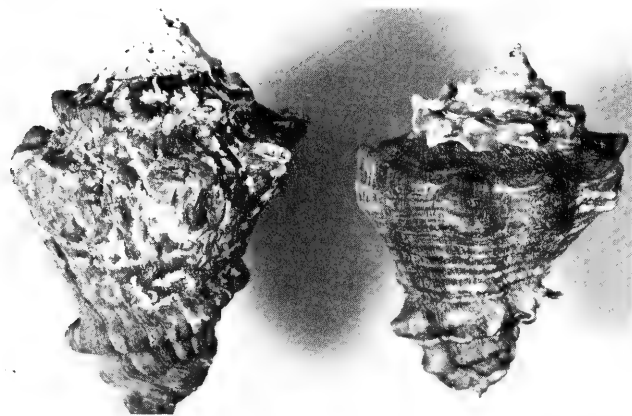


*Volvarina avena* (Kiener, 1834). 12mm. Florida Keys under rocks and crawling at night.



*Volvarina avena varia* (Sowerby, 1846). 15-17mm. 50' on reef wall, SCUBA, Roatan, Honduras.

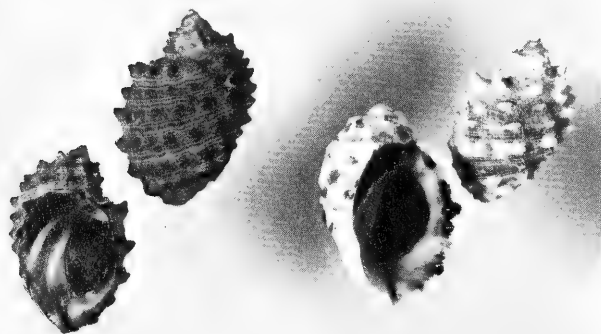




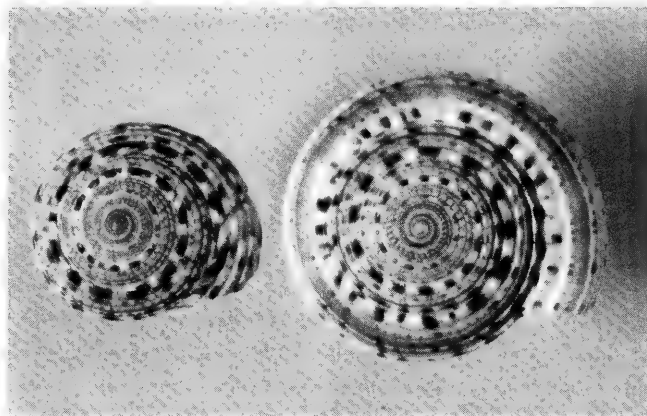
*Vasum muricatum coestus* (Panamic) and *V. muricatum* (Carib.)



*Thais haemostoma biserialis* (Panamic) and *T. h. floridana* (Carib.)



*Purpura patula pansa* (Panamic) and *P. patula* (Carib.)

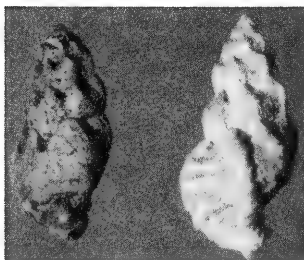


*Architectonica nobilis* (Panamic and Caribbean)

## WHY THEY LIVE WHERE THEY LIVE Part III

by Peggy Williams

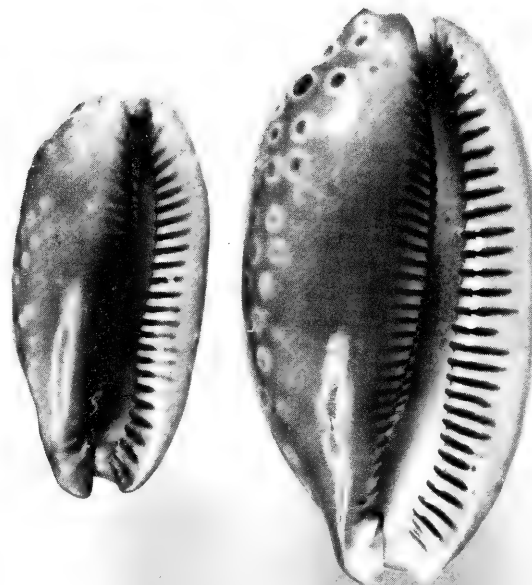
### Don't I Know You?



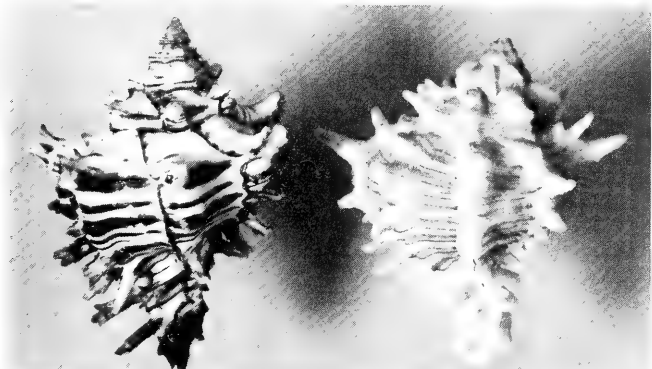
*Dermomurex obeliscus* (Panamic) and *D. pauperculus* (Carib.)

There are shells found on each side of the narrow ribbon of land between Mexico and South America which look so much alike they seem the same — yet they are different species. Why?

Long ago, during the Miocene and early Pliocene, when there was more liquid water in the world, there were several channels from the Pacific Ocean to the Caribbean Sea, across the Isthmus of Panama and northern Colombia. Thus, the

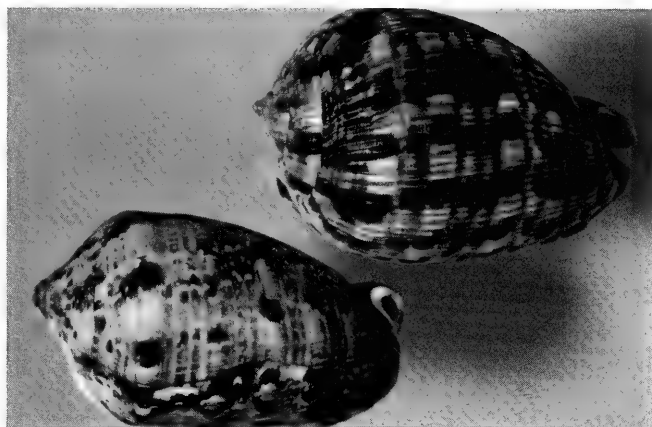


*Cypraea cervinetta* (Panamic) and *C. zebra* (Carib.)



*Hexaplex princeps* (Panamic) and *H. fulvescens* (Carib.)

whole area was really one sea, with one molluscan fauna (called West Tethyan). Coastal mollusks were able to move from ocean to ocean and were pretty much the same species on both sides. Most of the Miocene and Pliocene fossil mollusks of the two coasts are identical.



*Cypraea coarctata* (Panamic) and *C. testiculus* (Carib.)

During the Pleistocene, these channels were closed by an uplift forming a final land connection between North and South America and a general lowering of sea level during the time of maximum glaciation in the Northern Hemisphere. When the Isthmus closed, great changes

took place in water temperature and currents, and slowly the mollusks on each side, which were once the same species, began to change and adapt to the new conditions. As they did so, they became new and separate species, but many of them still resemble their "brothers" across the land. These pairs of similar mollusks are called "cognates."

It is estimated that about 29-35% of the species on each side of Panama are either the same species or are cognates.

Interestingly, though the original Tethyan fauna was mainly of Caribbean origin, the remaining mollusks are greater in number and variety in the Pacific than in the Caribbean. This is probably because great areas of the Caribbean (the shallower sea) dried up after the land closed, resulting in extinction of many species that could not move to deeper water.

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*The following, including the editorial note at the end, is reprinted directly from the March-April 1991 number of Shell and Tell, Newsletter of the Gulf Coast Shell Club, Panama City, Florida, edited by Linda and Jim Brunner. They've taken it from Marine Conservation News. We think that the matter is of great concern to all shell collectors, and that now, in the early planning phases of the management plan, is the time to address our letters and comments to the people in charge. If the plan is drawn up without massive input from the shell collector/conservationist, it will certainly not address the shell collector's concerns. Among the ill-informed, it is quite easy to make a case for the shell collector being the culprit in declining molluscan populations. And once the minds of the policy-makers are made up, effecting a change in their plans will be much more difficult. Make your voice heard now.*

## FLORIDA KEYS BECOME NATION'S LARGEST MARINE SANCTUARY

It took until the waning hours of the 101st Congress to happen, but for the first time ever a national marine sanctuary has been designated through an act of Congress. The designation of the Florida Keys NATIONAL Marine Sanctuary is as significant for our country's natural areas as was the creation of the Everglades or Yellowstone National Parks. Finally, some of our most special marine heritage is receiving the protection that it so direly needs.

The new marine sanctuary is the nation's largest, covering approximately 2,600 square nautical miles (3,500 square statute miles) and stretching from just south of Miami southwestward to the Dry Tortugas, 200 miles distant. Waters on both sides of the Keys are included, thereby protecting the only complete tropical marine ecosystem in the United States, comprising seagrass beds, fringing mangroves, and spectacular coral reefs. The new sanctuary encompasses two existing national marine sanctuaries: Looe Key and Key Largo.

For the past year the Center for Marine Conservation has worked with the other members of the Coral Reef Coalition, other user and interest groups, and Congress to pass as strong a bill as possible. We worked closely with the sponsors of the legislation — Representative Dante Fascell and Senator Bob Graham, both of Florida. They deserve special commendation for their unflagging efforts to pass this legislation.

Last summer the bill was sailing through Congress with little difficulty, but in September, with jurisdictional concerns over a provision of the bill that dealt with water quality protection and the federal budget debacle, the legislation appeared dead in the water. Fortunately, however, differences were worked out, and on November 16, less than one year after the bill was introduced, President Bush signed H. R. 5909 into law, officially creating the Florida Keys National Marine Sanctuary.

Even though we have cleared the Congressional hurdle, there is still much to do. Over the next 30 months the National Oceanic and Atmospheric Administration (NOAA), the agency that administers the National Marine Sanctuary Program, will develop a comprehensive management plan with specific regulations for the site. The only regulations that go into effect immediately in the new sanctuary are a prohibition of oil and gas development, and restrictions on commercial vessel traffic. In addition, the bill also mandates that the Environmental Protection Agency and the State of Florida, in consultation with NOAA, develop a water quality protection program to tackle the pollution problems that plague the Keys' waters.

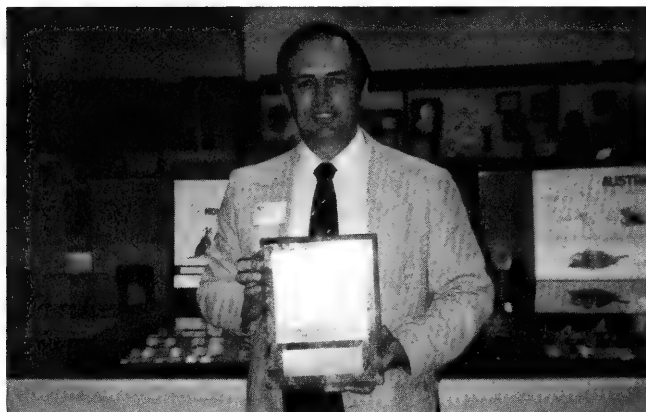
Much of the input for development of NOAA's comprehensive management plan will come from the public, either in testimony at public hearings or through written comments to the agency. Public "scoping hearings" will be held at several locations in South Florida.

The Center is now working with other members of the Coral Reef Coalition on a public education campaign to inform and educate people of the need to strongly protect the unique resources of the Keys. For more information on how you can participate in this campaign, contact CMC's Washington, DC office. Right now we especially need your letters to Governor Leighton Childs and EPA Administrator William Reilly, asking them to move forward on the comprehensive water quality protection program for the new Florida Keys National Marine Sanctuary.

*(Ed. Note: This article was published in the Marine Conservation News, Spring 1991 Edition, PP. 7-8. What effect the creation of this Park would have on shelling in the Florida Keys is currently unknown. At best it will impose limitations; at worst it may eliminate shelling altogether. Shell and Tell takes no position on the Park but feels that all shellers should be part of the planning process. In any event — if you are planning to do any Florida Key Shelling it would be a good idea to get it done before the end of October, 1993.)*



A smiling Joan Scribner shows off her COA Trophy at the Naples Shell Show for her exhibit entitled "Worldwide Beauties." It looks like a beautiful exhibit, Joan.



Super Sheller does it again! At the Central Florida Shell Club Shell Show, Gene Everson won the COA Trophy for his exhibit, "Shells of Australia". Nice work, Gene!

## SHELL SHOW CONCERNS

by Bobbi Cordy

For the past twelve years my husband Jim and I have been chairmen of the Astronaut Trail Shell Show, and before that we helped with the Santa Barbara Shell Show in California. During that time we have also been involved in judging several shows. So we have seen and been in a lot of different judging situations — at all ends of the judging spectrum: as show chairmen, judges, and exhibitors — and have had to solve a multitude of problems. As we established and prepared our first shell show in Melbourne in 1979, our shell show committee had the foresight to set down some strict guidelines for its judging. Thus shell show judging is a subject to which we've given a great deal of time and thought. Out of these experiences we have formed some pretty strong ideas and opinions on good judging procedures and would like to share them with you in hope that they may be of help to other clubs.

First let me say that my favorite area of judging is arts and crafts. It's so exciting to see the beautiful entries that creative people come up with. I truly believe that arts and crafts judges should be both very creative people and somewhat knowledgeable about shells as well. I often have had exhibits judged or just been to shows where the arts and crafts judge(s) knew little or nothing about shells. Using a local art instructor or an award-winning artist usually does not work out very well. They must judge strictly by art standards and are hindered in their decision by ignorance of what it has taken to get the shells together to create an object. They may not even know if the materials being used are really shells or some other material. Certainly the situation puts the exhibitor at a disadvantage because the work he has put into his creation may not be appreciated.

Second, judges for the specimen shells should have, among themselves, a balanced knowledge of shells. It's a good idea to employ the abilities of two or more judges who have different interests. If one judge's specialty is Caribbean shells, be sure to choose a second judge with expertise in fossils, worldwide shells or land shells. With this precaution, they should be able to judge just about any exhibit they encounter. At our first Florida show exhibit, fresh from California, we found our exhibit of California shells got no notice at all. It turned out that the judges had never encountered most of the shells we exhibited, so, not knowing how to judge our exhibit, they didn't judge it at all.

Third, shell show officials should be very careful in selecting their judges so that there can be no accusations of bias. We love shell dealers — but for this reason we strongly feel that using only dealers as your judges is not a wise choice. **The important thing is to avoid any reason for the exhibitors to question the judging.** And many exhibitors feel that dealers give more credit to shells they know came from their shop. I don't believe this is true, but why let your club's show be open for **any** criticism? Avoid the problem by using a dealer and a scientist. And I also feel that judges should not be members of the host

club — this really opens the situation up for criticism and conflict. Members of a club judging other members doesn't make for good, unbiased judging.

Fourth, shell show officials need to handle their judges very carefully, and **GUARD** them against compromising and awkward situations. Don't entertain them in an exhibitor's home before the judging. If that exhibitor wins a "big" award, the judge could be accused of partiality. Put your judges in a motel if possible until after the judging. Contact your judges early, treat them as your invited guests (which they are) for the weekend, properly inform them so that they can be prepared to judge by providing a copy of your shell show rules several weeks before your show. And once the judging is over, extend them full hospitality. Our favorite shows to judge have been the ones where we were invited to members' homes after the judging to see their collections, help with identification, and get to know the membership. And finally, don't allow your judges into the exhibit hall until all exhibitors are set up and out of the hall, and have someone check to make sure that no exhibitors' names or pictures are showing on any of the exhibits.

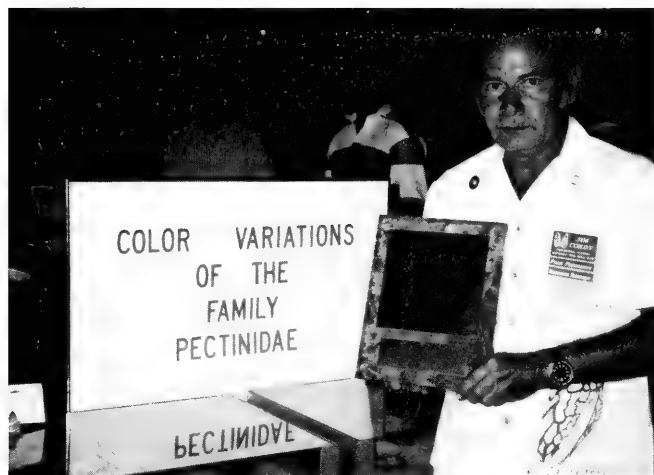
Fifth, shell show clerks who help the judges with paper work and rules should not be exhibitors. Jim and I recently judged a show where all the clerks were exhibitors. We didn't know it until the judging was over. This meant that the exhibitor - clerks heard everything we said. At this same show, one of the clerks disqualified an exhibit in competition against his own exhibit. Disqualification judgments should be made by judges and shell show chairmen, not exhibitors. Clerks should certainly be familiar with the rules in case questions are asked, but should never offer their opinion or help with the judging.

Sixth, the judges' decisions are final. No clerk or show chairman should tamper with these decisions. Let them withhold an award if they feel it is not deserved. Giving an award just to get rid of it or to avoid controversy is not ethical. Exhibitors should earn their awards, not be given them as gifts. The specific guidelines that accompany the COA and the duPont awards should be followed.

You are probably thinking at this point that we don't trust judges, but that is not true at all. Some of our favorite people are shell show judges. We can draw so much from their advanced knowledge of conchology, and we enjoy getting to know them as people while we "pick their brains." And after all, we've been judges ourselves!

We hope that some of these guidelines help make shell shows free from hassles, pressures and crises. And we'd like to suggest that COA biography, including their interests and experience.

Bobbi Cordy, 385 Needle Blvd., Merritt Island, FL 32953, is shell show chairman of the Astronaut Trail Shell Club, as well as editor of the club's newsletter, **The Capsule**.



Palm Beach County Shell Club Shell Show awarded the COA Trophy to Jim Cordy of Merritt Island, Florida. Jim's trophy winning exhibit was entitled "Color Variations of Pectens." We bet it was colorful indeed.

*Some of our readers may not be aware that COA has addressed some of the problems which confront shell show committees by developing the following list of tips for successful judging:*

#### GUIDELINES FOR THE CONCHOLOGISTS OF AMERICA AWARD SOUND JUDGING PROCESS

Sound and unbiased judging is central to a good shell show. The following are suggested guidelines aimed at achieving this goal for scientific exhibits.

- A. For each show there preferably shall be two or more suitably qualified judges working as a panel.
- B. All judges should have a good general knowledge of conchology. At least one member of the judging panel, acting as the senior judge, should have superior knowledge in judging shell shows.
- C. All judges should be familiar with the rules of the shows they are judging.
- D. The show sponsor should provide a suitable environment in which the judging is to take place. There should be adequate lighting; and the process, free from unnecessary interruptions.
- E. Each show sponsor should assign one or more clerks to assist in the judging process. The clerks should be thoroughly familiar with the show rules. A copy of the shell show rules should be made available during the judging process for quick reference.
- F. The clerk(s) should not be competing exhibitor(s) at the show.
- G. The judging process should be conducted free from outside influence, including prejudicial comments or suggestions from the clerk(s). The judges should have the right to privacy for free and uninhibited discussions among themselves.
- H. Exhibits to be judged should be identified anonymously. A commonly accepted practice is to identify each exhibit numerically. Text or graphics depicting the exhibitor should be covered up.
- I. Where there is a conflict of interest, the particular judge involved should remove himself from the discussion on that one exhibit.
- J. There shall be no contact between the judges and the exhibitors for a reasonable period of time before and during judging. Lodging of judges at an exhibitor's home and getting together at a social function before judging should not be allowed.
- K. Judges should withhold awards (including the COA Award) when no exhibit is found to measure up to standards deserving such an honor.
- L. Post-judging critique of any exhibit by a judge, when asked for, is deemed a healthy process and should be encouraged.
- M. Judges' decisions are final.



Photo by Fay Mucha

"COA Trophy winners at the Broward Shell Show, Stan and Bobbie Phillips hold their prize for their excellent exhibit, "World-Wide Pectens." Nice work, Stan and Bobbie!



COA Trophy winners, Ed and Kathy Sarkin, display their well-deserved trophies at the Greater Miami Shell Show. They're standing in front of their very fine exhibit, "Caribbean Province Marine Mollusca."

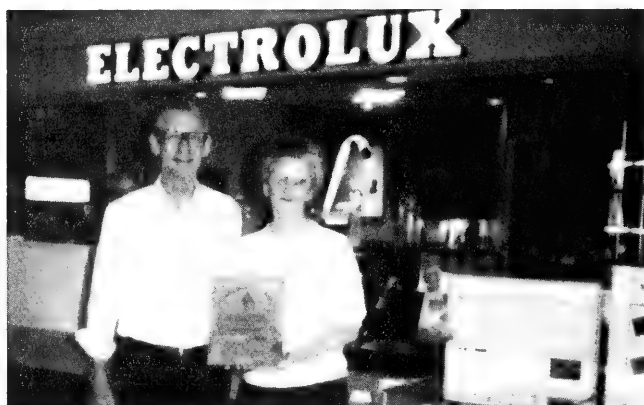


Dick Forbush showing off his COA Trophy, won at the Sarasota Shell Show for his "Worldwide Self-Collected" exhibit. The exhibit also won the Shell of the Show and several other blue ribbons and awards. Congratulations, Dick!





Virginia Geyer and her COA Trophy at the Marco Island Shell Show. Her exhibit was another of those fascinating fossil displays, "Fossil Shells from APAC Quarries, Sarasota, Florida." Virginia also won the duPont Trophy at the same show for another exhibit. Quite a show, Virginia!



Louise and Doug Compton won the COA Trophy at the Georgia Shell Club Show for their exhibit entitled "Molluscan Creations." Our congratulations to you both, Louise and Doug!

### THE SHELLERS' JAMBOREE

We're looking forward to hearing all the details of the Suncoast Sheller' Jamboree which was held May 25-27. For the first time this event was open to clubs from outside Florida, so we're sure it was even bigger and better than ever. Congratulations, Suncoast, on this always—successful event! Wish we'd been there!

### A FOSSIL FAIR TOO?

The Bone Valley Fossil Fair 1991 will be held at Winter Haven, Florida, October 4-6. Sponsored by the Bone Valley Fossil Society, the event will be held at the Best Holiday Trav-L Park, 7400 Cypress Gardens Blvd., just two miles east of Cypress Gardens. Exhibits, a slide program, an auction, dealers — if you love fossils, you'll want to see for yourself. There'll be fossils, minerals, gems and artifacts. For more information write BVFS — PUBLICITY, c/o Eric S. Kendrew, 4436 Tevalo Dr., Valrico, FL 33594-7343.

COA member Arthur Stanton died of a heart attack February 26, 1991. We offer our condolences to his widow, June Huie-Stanton, a former COA Executive Board member.



John and Esther Lewis of Sarasota receiving the COA Trophy at St. Petersburg from judge Jim Quinn of the Florida Department of Natural Resources. The Lewis' trophy-winning exhibit was entitled "The Chambered Nautilus," and we hear it was a smash hit.



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### 1991 SUMMER AND FALL SHELL SHOWS AND OTHER MEETINGS

by Donald Dan, COA Trophy Chairman

- |                     |  |
|---------------------|--|
| Jun. 30-<br>Jul. 5  | <b>American Malacological Union Annual Meeting</b><br>(Joint Meeting with Western Society of Malacology)<br>Berkeley, CA<br>Dr. Carole S. Hickman, Department of Paleontology<br>University of California, Berkeley, CA 94720 (415) 642-3429 |
| Jul. 8-12           | <b>Conchologists of America Convention</b> , Melville, NY<br>Walter E. Sage III, P.O. Box 8150<br>Saddle Brook, NJ 07662 ..... (201) 340-3437  |
| Jul. 13-14          | <b>Keppel Bay Shell Show</b> , Yeppoon, Queensland, Australia<br>Jean M. Offord, 277 McDougall St.,<br>N. Rockhampton, Queensland 4701, Australia (079) 283-509  |
| Aug. 3-4            | <b>Townsville Shell Show</b> , Queensland, Australia<br>Von Vandenburg, 12 Lillipilli St., Vincent 4814<br>Townsville, Queensland, Australia ..... (077) 75-6275   |
| Aug. 15-17          | <b>Jersey Cape Shell Show</b> , Stone Harbor, NJ<br>J. B. Sessoms, P.O. Box 24<br>Ocean City, NJ 08226 ..... (609) 653-8017  |
| Aug. 30-<br>Sept. 1 | <b>Gulf Coast Shell Show</b> , Panama City, FL<br>Jim & Linda Brunner, P.O. Box 8188<br>Southport, FL 32409 ..... (904) 265-5557   |
| Sept. 13-15         | <b>Midwest Regional Shell Show</b> , Merrillville, IN<br>Marion Magee, 2117 Fisher Ave.<br>Speedway, IN 46224 ..... (317) 247-8079   |
| Sept. 21-22         | <b>International Shells &amp; Fossils Bourse</b><br>Ottmarsheim, France<br>Michel Rioual, 2 Rue des Vilgils<br>68490 Ottmarsheim, France ..... (089) 26-16-43  |
| Oct. 12-13          | <b>Annual German Shell Fair</b> , Stuttgart, Germany<br>Hans Gorg Niederhoser<br>Staatl. Museum Fur Natur Kunde<br>Rosenstein 1, 7000 Stuttgart, Germany ..... (0711) 893-6268   |
| Oct. 18-20          | <b>North Carolina Shell Show</b> , Wilmington, NC<br>Dean Weber, 510 Baytree Rd.<br>Wilmington, NC 28403 ..... (919) 799-3125  |
| Oct. 19-<br>Nov. 3  | <b>Oregon Shell Show</b> , Portland, OR<br>Vivian Holden, 11945 SW Lynnfield Ln.<br>Portland, OR 97225 ..... (503) 644-2020  |
| Oct. 26             | <b>British Shell Collectors' Club Shell Show</b><br>London, England<br>Kevin Brown, 12 Grainger Rd.<br>Isleworth, Middlesex TW7 6PQ, England ..... (081) 568-8333  |
| Nov. 9-10           | <b>Philadelphia Shell Show</b> , Philadelphia, PA<br>Al Schilling, 419 Linden Ave.<br>Glenside, PA 19038 ..... (215) 886-5807<br>(or 1-800-274-8530, toll free)  |

## LETTERS TO THE EDITOR

I have read with interest the various comments in the December and March issues of *American Conchologist* regarding *Cymatium* (*Monoplex*) *aquatile* (Reeve, 1844), *C. (Monoplex) intermedium* (Pease, 1869), and *C. (Monoplex) pileare* (Linné, 1758). While studying the Ranellidae, I read W. H. Pease's original description of *intermedium*. It appeared in the *American Journal of Conchology*, Volume 5, 1869, p.74-75. While he mentions the same differences in the shells that have been mentioned before, I would like to quote the end of his description which I consider the pertinent part:

"The animal of *aquatis* is of a very pale straw color, covered with crowded round spots of various sizes, varying from a light to a dark reddish brown; disk of the foot dull pinkish ash and spotted with reddish brown. *Pilearis* is of a pale cream color, spotted with black.

"The animal of *intermedium*, Pse., is covered with spots, irregular in size and shape, of a dark brownish red, margined with yellow, the interspaces of a light reddish fawn; where the spots closely approximate, the interspaces are yellow."

On the basis of this, I consider *aquatile*, *intermedium*, and *pileare* three separate species. If someday I see the bodies of these animals and find Pease was incorrect and they are indeed identical, I will be willing to change my mind.

Mrs. Betty Jean Piech  
211 N. Augustine Street  
Wilmington, DE 19804

We are not in the habit of boasting about compliments, but we publish David Freeman's kind and generous letter in order that all those many whose contributions have made *American Conchologist* possible through the past few years may read it and enjoy their much-deserved praise for many jobs well done. And thank you, David. It's readers like you who make the job a pleasure.

The March, 1991 number has just arrived and, as usual, I know I can settle down to a satisfying read this afternoon.

One thing I have been meaning to write to you about for a very long time is the great pleasure I get from your cover illustrations. One has only to spread out the magazines for the past couple of years to see how consistently good they are. The artists and designers deserve our acknowledgement, and the editorial staff our congratulations and thanks for showing and sharing with us this creativity and talent.

They make a fitting packaging for the very readable contents!

DAVID FREEMAN  
41 Duncan Road, Seapoint  
8001 Cape Town, South Africa

I read with interest of Aurora Richards' visit to Mauritius in the *American Conchologist*, vol. 18, no. 4, including her mention of her "short incursion into South Africa, visiting hospitable members of the South African Malacological Society in several locations. . . ." I would like to provide an addendum to Mrs. Richards' article, giving a fuller account of her itinerary while in South Africa.

The South African organization is entitled "The Conchological Society of Southern Africa," and not "The South African Malacological Society," as Mrs. Richards termed us . . . a small but significant difference, we believe.

Mrs. Richards spent over a week in South Africa where she was entertained by the members of the Conchological Society of Southern Africa. She was entertained by Lizeke van den Berg in the Transvaal in whose beautiful home she stayed as a guest and then entertained in Durban by the Durban Group of the Society. I took her to meet Helene Boswell at the Natal Lion Park and then on to Pietermaritzburg to meet

with Drs. Dick Kilburn and Dai Herbert of the Natal Museum. The Director of the Society, Mr. Geoff Wallace, also took her out for a day. She was entertained by Val van der Walt and by Dawn Brink who spent a morning showing Aurora her magnificent gem collection of South African and world-wide shells. At a tea party in the afternoon, she was able to meet the members of the Durban group, to whom she delivered a most interesting talk on Papua New Guinea.

Olive Peel  
3 Coral Haven  
21 Clark Street  
Durban 4001, South Africa

Ms. Peel is the new editor of the *Strandloper*, the excellent publication of The Conchological Society of Southern Africa.

## CACTUS AND SUCCULENT JOURNAL

VOL. 62

NOVEMBER-DECEMBER, 1990

No. 6



Those readers who know Robert Foster and Charles Glass, proprietors of Abbey Specimen Shells, may enjoy the accompanying caricature because they also know that Bob and Charlie share another interest besides the shells they sell. They are cactus fanciers (Is it any wonder they love those spiny murex?). In fact, Charlie, for five years the editor of the *COA Bulletin*, now known as *American Conchologist*, is also the longtime editor (25 years!) of *The Cactus and Succulent Journal*.

Charlie and Bob were recently featured on the cover of the Journal. The artist, another cactus fancier and a South African, Gerhard Marx, sent Charlie the following note of explanation:

"The caricature is meant as a tribute to you and Bob for all your work on cacti to date. . . I portrayed you, the editor, in Huichol Indian dress to represent the special and intimate relationship you had with cacti over the years — not because I suspect you of peyote consuming! . . . I learned that Bob has a beautifully kept *Haworthia* [a succulent] collection, hence the shirt. Barefoot Bob may have just come back from the beach, doing shell-collecting, but to remind of the days he collected in pricklier environs, there is still an *Opuntia* joint clinging to his leg.

Thanks to the very talented Mathilde Duffy for her generous contribution of the attractive little drawings that appear here and there throughout this issue.

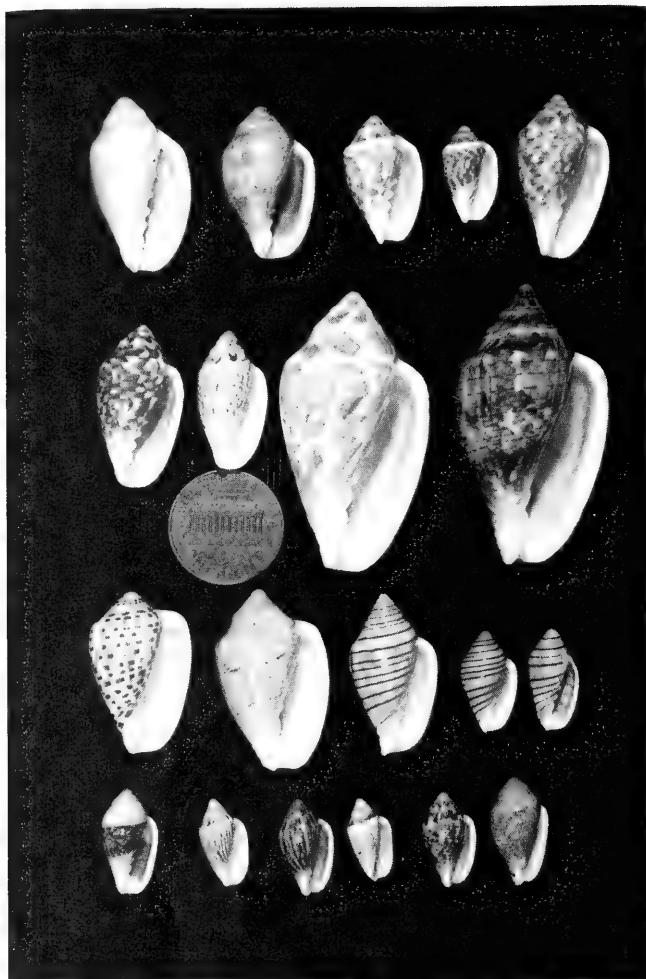


Plate 9. SOUTH AFRICA, Actual size.

1. Number 37, *Marginella* sp.  
25mm, South Africa, Diver collected.
2. *Marginella ornata* Redfield, 1870  
23-25mm, South Africa, Scuba 12-24 meters.
3. *Marginella* cf. *bairstowi* Sowerby 1889  
19-22mm, South Africa, False Bay, 14 meters.
4. *Marginella bairstowi* Sowerby, 1886  
14-16mm, South Afr., 30 meters off Port Elizabeth.
5. *Marginella floccata* Sowerby, 1899  
23-27mm, S. Afr., 10-50 meters, False Bay.  
Color, black dashes on blue tone.
6. *Marginella rosea* Lamarck, 1822  
17-23mm., S. Afr., East Coast of False Bay, 6 ft. Deep water variety has teeth inside outer lip.
7. *Marginella rosea* Lamarck, 1822  
17-20mm, S. Afr., West Coast of False Bay, 6 ft. Deep water ones have teeth inside outer lip. Cold water forms are never as colorful.
8. *Marginella nebulosa* (Roding, 1798)  
35-42mm, S. Afr., False Bay, Capetown, 14 meters. Grey and pink on cream.
9. *Marginella* cf. *nebulosa* (Roding, 1798)  
44-45mm, S. Afr., Trawled offshore deep water. This variety is very uncommon. Black lines on grey & cream.
10. *Marginella mosaica* Sowerby, 1846  
25-29mm, S. Afr., Jeffrey's Bay, dead collected. Brown, yellow on cream.
11. *Marginella lineolata* Sowerby, 1886.  
26-30mm, S. Afr., 40 meters, Cape Point by diver.
12. *Marginella musica* Hinds, 1844.
13. 16-26mm, S. Afr., trawled off Agulhas Bank, 160-200 meters, and off Pt. Garicke in 42 fms. Black on yellow/green.
14. *Marginella diadochus* Adams & Reeve, 1850  
16-19mm, S. Afr., off Agulhas Bank 300 meters, *ex pisce* from batfish. Similar to *musica*.
15. *Marginella piperata* var. *albocincta* Sowerby, 1846  
15-22mm, S. Afr., Algoa Bay, 2-10 meters.
16. *Marginella piperata* var. *strigata* Sowerby, 1889  
13mm, S. Afr., False Bay, 12 meters.
17. *Marginella piperata* Hinds, 1844
18. 15-20mm, S. Afr., Algoa Bay, 2-10 meters, sand
19. under rocks or exposed at night.
20. *Marginella piperata* var. *lutea* Sowerby, 1889  
17-18mm, S. Afr., Port Elizabeth, 16 meters.

## REVIEW:

**MARGINELLAS, Volume I**, by Robert Lipe. Published by The Shell Store, St. Petersburg Beach, Florida, 1991. 40 pp., color covers, 18 black and white plates. \$15.95

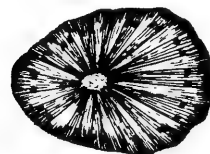
Bob Lipe has been collecting and photographing shells in the family Marginellidae for over 20 years. His dream is to publish a book using these color photographs to illustrate the living animals (thus, presumably, the "Volume I" of the title). But for now, he offers this popular guide so that all of us can identify our marginellas today.

The little book illustrates over 250 species in crisp, clear black and white photographs. 25 species are illustrated in color on the front and back covers. (Bob is, among other things, an excellent photographer.) Each shell is shown actual size, and many of the smaller species are also enlarged for better visibility of its characteristics. Shells from each geographic region are grouped together. The species are also indexed alphabetically. The reader can judge for himself the photo quality and accompanying text from the plate reproduced above. The book will also be very useful for recently published marginellid names.

Bob received the assistance of Gary Covert of the Dayton Museum, a longtime student of the family, as to the generic allocations and nomenclature. Nevertheless, Bob acknowledges that there will be some controversy over some of the decisions, for which he takes full responsibility. He says, "More work is needed on this family, and this book is my first step in that direction. There will be some controversy, which I welcome, and changes will undoubtedly be made."

Nevertheless, changes or no, this little book, the result of countless hours of research and work, is certainly the most comprehensive work to date on the Marginellidae, and an impressive effort by an advanced amateur shell collector.

—L.S.



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Carole S. Hickman and James H. McLean, 1990. *Systematic revision and suprageneric classification of trochacean gastropods*. Science Series, no. 35, Natural History Museum of Los Angeles County, 169 pages, 100 figures.

In this very detailed publication, Trochacea is rediagnosed as one of three superfamilies of the Archaeogastropoda — the other two are Pleurotomariacea and Fissurellacea. Two main families are recognized within Trochacea — Trochidae and Turbinidae, and a third family Skeneidae is provisionally accepted. The family Trochidae is divided into 13 subfamilies and 11 tribes, among them Tegulinae, Margaritinae, Trochinae, Stomatellinae, Calliostomatinae, Solariellinae and Umboniinae. Turbinidae is divided into nine subfamilies, among them Liotiinae, Angariinae, Gabrielloninae, Tricollinae, Phasianellinae and Turbininae. "The revised classification is based upon new observations of the trochacean animal and radula, the explicit definition of new characters and character states. . . . Data are derived primarily from the study of newly-collected material. . . . "Those interested in Archaeogastropoda will surely want to study this volume, available in hard cover from the Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007. (No price indicated).

—W.S.

## The Showing and Shelling Department: TELL ME I'M NOT DREAMING!

by Lisa Mitchell

Well, 8 years and 24 exhibits later, I finally did it! My first major award at a shell show. The COA Trophy! What a thrill!

Before I tell where and what for, I'd like to go back to the first time I ever attended a shell show. The place: The Colonnades, the time: 1981, the event: The Palm Beach County Shell Show. I had seen a sign at Sea Shell City advertising the show, and since it was only five minutes or less from our house we decided to check it out.

I never dreamed in my life that such treasures existed! There were shells from every corner of the world. They were so beautiful. I knew right then and there that shell collecting was what I wanted to do. We joined the Palm Beach County Shell Club that day! And from that we got 2 complimentary issues of *Of Sea and Shore* magazine, which opened a whole new door. Shell Dealers and Mail Order Shells!

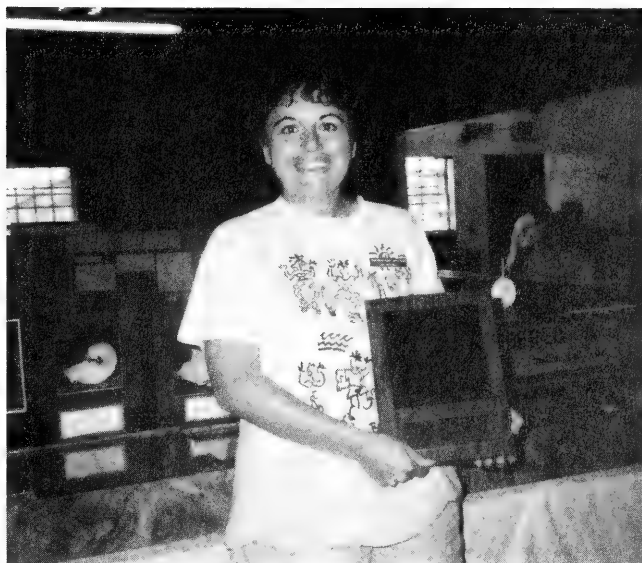
I spent the whole next year buying what I considered specimen shells from such places as Sea Shell City and the Sea Shell Factory. And about a month before my very first show I finally got my first real specimen shells from a real dealer. They were so beautiful.

Months before, we began preparation of my case. My memory of that first shell was foot after foot of endless shells. I don't believe that I even gave the cases a glance. So I told Mark I would have an exhibit of about 8 feet. And my novice carpenter built me an 8 foot case, complete with an 8 foot sheet of glass. We were set. We had the shells, the labels, the case. We were ready to show them off.

As you can imagine, the experienced shellers nearly fell down laughing at our monster case. I'm sure the judges had a laugh or two also! I won a third place ribbon. Sure I was disappointed. But there was one person there who cheered me up. His name was Neil Hepler. He helped Mark and me load that 8 foot monster in the van for the trip home. And then he told me how he had done a similar thing his first time. And he put his arm around me and he told me that my exhibit was really good and he told me never to give up. Save everything, write lots of letters, and every year try harder and harder. And when Mark and I left, I turned to Mark and said, "I want to be just like Neil — he loves shells just like I do."

So here I am 8 years later, with my first COA Trophy in front of me. And I won it on one of Neil's passions, "The Chambered Nautilus." After Neil passed away, his collection and notes were spread out all over the country. And as luck would have it, I was able to purchase a few of his Nautilus. And through one of Neil's dear friends I acquired rare photos and journal articles on the Nautilus.

After learning about our upcoming new addition to the family, I more or less decided to pass on shell shows for the 1990 season. But thank heavens I changed my mind. In December we went into Shell Show Panic!



Shell Show Panic consists of mad rushes to Postons' Art Supply for just the right colors of poster paper for my labels. And the Panic consists of sitting on the couch with magazines and several shell books all around me. And pages and pages of notes on what I want to say . . . keeping in mind what Neil told me, "Keep it short; no one is going to read a whole typed page of information."

The Panic also includes hour after hour at the typewriter. For Christmas all I wanted was a table top paper cutter and an ammonite. And Santa made sure they were under the tree. The Shell Show Panic paid off: at the Miami Show I won a blue ribbon and a special merit ribbon. And then we were on the road to the Treasure Coast Shell Show. As they say, the rest is history. I got a call from Dave SyDoriak telling me the good news. I could hardly sleep that night! We drove up the next day to make sure the judges hadn't changed their minds.

There it was on my exhibit, something I thought I would never, ever see. That ever-elusive piece of wood. The COA Trophy.

And it feels as good as I always dreamt it would feel. I couldn't have done it without the support of Mark and Justin through all of the Shell Show Picnic. And the support of my friends who are just as happy about it as we are. And, as I put it in my exhibit, "A special thank you to the late Neil Hepler, who compiled everything there was to know about the Chambered Nautilus, an inspiration to us all." — *From the April 1990 Seafari, Publication of the Palm Beach County Shell Club.*

## NOTES FROM THE PAST

by Bob Purtymun

### Dive Log Entry:

Dec. 27, 1972 — Snorkel, 80 minutes

Waikiki, Oahu, Hawaii (Hilton Hawaiian Hotel Channel)

I get my exercise by snorkeling — no jogging for me. As I prepared to enter the water off the break water near the hotel, I saw that my timing was just right this evening. The big catamaran was just leaving the dock for the evening dinner cruise. I swam out and waved at the tourists, and finned on over into the wake as they passed.

The catamaran has to cross a shallow sand bar on the way to the channel cut through the reef. Its propeller screws fan a wide swath of this sand (more than I could fan in two hours by hand), at times exposing many shells. This evening was a good one! Into the goody bag went five species of *Terebra*, two species of *Hastula*, a large *Oliva paxillus sandwicensis* Pease, 1860, and, just as the sand bar sloped into deeper water, a *Terebra achates* Weaver, 1960. It was 111mm long.

## BOARDTALK...

From COA Treasurer WALTER SAGE: As of this writing (May 1) we still have 250 memberships that remain unpaid for 1991. Our reminder mailing resulted in several payments and notices of address changes. This prompts me to remind everyone — if you have a change in name or address, PLEASE notify us as soon as possible. Since we use a Bulk Mailing permit, issues that can't be delivered as addressed are THROWN AWAY — and this costs us both money and wasted effort. Also, if you do not receive an issue by the middle of the next month (this means April, July, October, January) please contact us and we will replace the lost copy.

We will take a list of unpaid members for 1991 to the Long Island Convention and this matter of non-renewals will be discussed. We need to determine a more satisfactory method of getting in dues payments before we send renewal notices for 1992 with the September 1991 issue. Your help and suggestions are welcome.





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## OUR COA CLUBS — A CLOSER LOOK

### North Carolina Shell Club

In 1957, the Reverend Scott Turner placed an ad in a Raleigh newspaper which was read state-wide, asking if there were any who would be interested in starting a shell club. About 25 people from around the state responded, and the North Carolina Shell Club was born. During the past 34 years, the club has continued to flourish and today boasts a membership of about 240.

Among the club's members are several divers and snorkelers, world-wide or just-one-family collectors, "self-collectors," traders or buyers, beach shell collectors, several artists, and quite a few interested in arts and crafts.

From the beginning, the club has always held four meetings a year at different coastal locations, starting on Friday night with an informal meeting including programs, lectures and shell identification. Saturday has always been a planned trip to collect shells, and for those not shelling, workshops on how to exhibit shellcrafts, or more thorough identification. Saturday night also has programs, lectures, and a prize for the best find of the day. These meetings have always been quite popular; if you are interested in attending one or joining the club, contact Karlynn Morgan, 93 Hedrick Boulevard, Morehead City, North Carolina 28557.

Through the efforts of the club, North Carolina was the first state to officially adopt a state shell (1965). The idea was unique, and the bill passed readily. All those senators and representatives who had worked for the bill in the General Assembly received their own "state shell" from the club.

The state shell chosen by the club was the Scotch Bonnet *Phalium granulatum*, Born, 1778), and it was picked to honor the many Scottish Highlanders who had settled the coastal and Piedmont areas. Some Scotch Bonnets, when taken live and fresh, are very colorful and have a plaid pattern reminiscent of a Scottish kilt — hence the popular name.

The club's annual shell show will be held October 18-19-20 (as always, the third weekend in October) at Independence Mall in Wilmington. This show is open to any who wish to compete for the prestigious COA and duPont awards, among others. Judges, of course, are well-known throughout the shell world. Anyone interested may contact Dean Weber, 510 Baytree Road, Wilmington, North Carolina 28409.

Wilmington, being the state's largest seaport, has a long and venerable past, and history buffs will love it. Interested in the Revolutionary War? Visit Cornwallis' headquarters before he left for Yorktown. The Civil War? Visit a Southern plantation (for eating and touring), the Cotton Exchange on the river (shopping!), and a "walking tour." World War II? Tour the famous battleship "USS North Carolina," which fought successfully in all of the major Pacific theater battles. A few miles south is Fort Fisher, a partially reconstructed Civil War earthworks fort, and a mile beyond that is one of the state's three aquariums. All of this, plus sandy beaches, fishing and the Atlantic Ocean!

The club cordially invites you to come to any of its meetings and/or its shell show; you'll be warmly welcomed!

— Nancy Gilfillan

9922 Edward Avenue, Bethesda, MD 20814

## ASSOCIATION FRANÇAISE DE CONCHYLOGIE

Do you read French? It helps but it isn't really necessary for an appreciation of the *Xenophora*, quarterly publication of the French Association of Conchology. They publish most of their lead articles in French and English as well. And they always carry lots of pretty shell photos in color. If you're interested, write for information to AFC, 1 Impasse Guéménée, 75004 Paris, FRANCE. Postage for your letter will only be \$.50.

## COA LONG ISLAND CONVENTION:

### THE GOOD LIFE BECKONS ALL

The Long Island Shell Club is proud to report that the July 7-12 Convention is shaping up to be one of the best that COA has ever experienced. If you haven't already sent in your registration and made plans to join us, don't wait another minute — fill out your form and send it in at once!

While the official welcome won't open until Monday afternoon, there will be a number of functions take place on Sunday, July 7. Early registration will be held from 2-5 p.m., and there will be several exhibits you won't want to miss in the foyer outside the Grand Ballroom — these will be available for viewing through Tuesday afternoon. Sol Weiss has a special treat planned for "earlybirds" — a shell bargain table where everything in bags will be offered for the special price of fifty cents per bag. That evening there will be two slide presentations to get you ready for Monday and Tuesday.

Registration will be held on Monday from 9 a.m. to 5 p.m., and near the registration desk will be the COA sales table, with Sue Stephens' spectacular T-shirts, pins and patches available, and a couple of surprises you'll have to join us to learn about. The sale of tickets for the Special Raffle will begin, back issues of *American Conchologist* will go on sale — here's a chance to fill in some of the gaps in your collection of old *COA Bulletins* — the Bargain Table sales will continue (IF you haven't already emptied the table!), and we'll start the Silent Auction sessions, something everyone enjoys. The Welcome by COA and Long Island Shell Club will start the festivities at 1:30 p.m., followed by several slide presentations. After a break to "freshen up," our Get Acquainted Party will run from 6-8 p.m., after which you can go for dinner.

Tuesday, July 9 will be a full day of slide presentations, and we warn you now, these are outstanding talks, and you won't want to miss even one! Our annual Club Rep Meeting, organized by Vice-President Glen Deuel, will follow the talks. The evening event will be the Annual Auction, and Sol Weiss has done yeoman service in preparing this truly awesome assortment of shells and shell-related items.

Wednesday will be our day "off property." Following the sales of club materials (also held on Tuesday morning), we will board comfortable buses for the scenic drive to Pindar Vineyards and on to Orient Beach State Park. Trip Coordinator Linda Rushia has made all the arrangements for this and the Friday trip, and we are sure you'll enjoy this view of the Good Life on Long Island's north shore. That evening, we have two very special slide talks lined up, so be sure not to wear yourself out collecting shells at Orient Point.

On Thursday, we will inaugurate the new seminar sessions, with two sets of talks running concurrently in the morning. A letter explaining this format will be sent to everyone who has registered for the convention, and we are confident that you will enjoy and learn from these presentations. In the afternoon, we will start with Harry Lee's talk on Northeast Florida mollusks, an advance look at the species covered in the forthcoming publication by the Jacksonville Shell Club. Charlotte Lloyd will present the preview of the 1992 Jacksonville COA Convention, and she will be followed by the Annual Business Meeting and election of 1991-1992 officers. THEN, at long last, an event you've waited for all week — the truly stupendous Dealers' Bourse, which will run from 4-10 p.m. — so Come One, Come All — shop til you drop! We guarantee this year's offerings are the best ever!!

Then on Friday, our last full day, the Dealers' Bourse will continue from 9 a.m. until 1 p.m. While the dealers break down and everything is readied for the banquet, you will have a real treat — a visit to Sagamore Hill, the home of President Theodore Roosevelt. If you've never been there don't miss it!! The evening's festivities will begin with a cocktail hour from 6:30 to 7:30, followed by entertainment, a terrific dinner, and a slide and film talk by Dr. Ruth D. Turner, malacologist, Professor and Curator Emerita of Harvard's Museum of Comparative Zoology, who will speak on her deep dives in the submersible ALVIN. This is one banquet you don't want to miss. —

Walter Sage

Contact Co-Chairperson Walter Sage at (201) 340-3437 for further elucidation.

## CHENU, SURGEON-CURATOR EXTRAORDINAIRE

by William Hallstead

Shortly after the Napoleonic Wars in the early 1800s, Baron Benjamin Delessert of Lyon, France, assembled one of the era's great shell collections. As curator of this major assemblage, the baron appointed one Jean Claude Chenu. A medical doctor, Chenu was a surgeon major of the Gendarmerie of the District of La Seine, but he was destined to be remembered not for his medical prowess, but for his efforts in conchology.

In 1842, Chenu began work on the *Illustrations Conchyliologiques*, a staggeringly ambitious publication on mollusks. The work was to consist of monographs of various genera in a large folio size with lithograph engravings printed in color — no small undertaking considering the laborious hand-printing processes of the time — and retouched by hand.

Primarily under the direction of the noted French artist, Jean Gabriel Pretre, the plates were imprinted under the guidance of N. Redmond in Paris. The monumental work required an entire decade. A complete Chenu portfolio weighed more than forty pounds and included 482 plates, 358 of them in breathtaking color.

In 1879, Baron Delessert died. His shell collection was donated to the Museum of Natural History in Geneva, where portions of it are still on display. Today, most of the Chenu "elephant folios" have been dismantled, their plates used as interior decorations. No more than five complete sets exist in North America.

One of these sets, formerly owned by Pope Pius IX, is now in private hands in Florida. From it, The Bailey-Matthews Shell Museum project on Sanibel Island has selected four of the most attractive plates (Regal Thorny Oysters, Royal Cloak Scallops, Living Elegant Olives, and Queen or Pink Conch) for faithful reproduction.

Through the generosity of Mr. Nixon Griffis, Naples, Florida, president of the Griffis Foundation, the museum has published a limited edition of 250 numbered sets of these four Chenu folio plates. Set No. 1, autographed by the museum's honorary capital campaign chairman, actor Raymond Burr, has sold for \$2,500. The standard retail price is \$250 per set, with all proceeds of the underwritten venture going to the museum's building fund.

As Tucker Abbott, the museum's acting director, has said, "May these faithful reproductions inspire coming generations to protect our fragile environment and perhaps prevent the few remaining sets of Chenu's work from being dismantled."

1077 S. Yachtsman Drive, Sanibel, FL 33957



*Conus eucoronatus* Sowerby iii, 1903. A pair of beautiful specimens of this rare cone, trawled live off southern Mozambique. Coll. A. Gaspard.

## REVIEWS

### *Illustrations Conchyliologiques — Chenu's Color Plates*

I've just received the most marvelous item for review — the set of four Chenu plates reproduced for the benefit of the Bailey-Matthews Shell Museum to be established on Sanibel Island, Florida. Exquisitely crafted in the manner of the original Chenu work, these large size (14" X 20"; 35 X 50cm) lithographs would be a wonderful gift for yourself or that sheller we all know who has everything shell-related. Dr. R. Tucker Abbot, Founding Director of the Sanibel Museum, has provided explanatory covers for these plates, and has included the original captions that accompanied Chenu's sumptuous volumes. These began in 1842 and continued over a ten-year period, culminating in 85 parts, totalling 482 plates, 358 in gorgeous color and precise detail.

The four plates selected by Dr. Abbott are Plate 7 — *Spondylus regius* and *S. zonalis*; Plate 26 — gloriously colored *Pecten pallium*, Plate 34 — *Oliva elegans*, *O. maura*, *O. textilina*, and *O. angulata* [*incrassata*], with well-executed living animals; and Plate 2 — a stunning ventral view of *Strombus gigas*.

Your exclusively numbered and autographed set of four Chenu reproductions will be sent to you upon receipt of your check for \$250.00 sent to "The Shell Museum and Educational Foundation," P.O. Box 1580, Sanibel, FL 33957. Remember, this is an edition limited to 250 copies, so the set is truly a collector's item — an opportunity to possess a work of conchological art never before available to the shell-collecting public. Set Number 1 was auctioned for \$2500.00 at a dinner earlier this year at which Raymond Burr and Robert Benevides, Honorary Fund-Raising Campaign Chairmen, were guests of honor, so you have the wonderful opportunity to add this set to your collection for a tenth of that price — a real bargain. — **Walter Sage**

## CONTEMPORARY CONCHOLOGY

by Walter Sage

Two of the recent recipients of COA grants have published papers acknowledging COA's financial support. **The Nautilus**, volume 104, no. 4, p. 111-119, December, 1990, features Ronald Gilmer's paper describing a new species of pteropod mollusk, *Procymbulia philiporum*. The COA grant helped fund the color plate of this unusual mollusk. **The Veliger**, vol. 34, no. 2, p. 195-203, April, 1991, includes a paper by Amelie Scheltema and Alan Kuzirian describing a new genus and species, *Helicoradomenia juani*, of aplacophoran mollusk taken by the submersible ALVIN at 2350 meters, Endeavor Segment, Juan de Fuca Ridge, northeast Pacific Ocean.

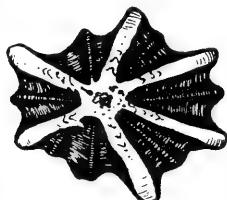
**The Nautilus**, vol. 105, no. 2, April, 1991, contains two articles of interest. In the first paper, Drs. Rudiger Bieler and Alan Kabat provide a compilation of malacological journals and newsletters from 1773-1990. This is a valuable contribution which should allow a reader or student easily to find some information on even the most obscure references. It is also fascinating reading to page through this paper and take note of the many and varied professional and amateur magazines published in this country alone. Interestingly, **American Conchologist** is the first [alphabetical order] publication cited for the United States of America. The authors welcome any information on the more obscure titles.

In the second paper in this issue of **The Nautilus**, Dr. William K. Emerson differentiates *Cymatium mundum* (Gould, 1849) from *C. gemmatum* (Reeve, 1844) and records the first occurrence of *C. mundum* in the eastern Pacific and western Atlantic oceans. Data on shallow-water Indo-Pacific prosobranch gastropods occurring in the eastern Pacific are presented in tabular format and an appendix lists geographic records of the 20 shallow-water Indo-Pacific prosobranchs (other than Tonnacea) known from the West American Continental Borderland, from Mexico to Peru, including the near-shore islands.

**Tulane Studies in Geology and Paleontology**, vol. 23, no. 4, December 1990 includes a 24 page addenda and errata to Harold Vokes' "Genera of the Bivalvia." Students of bivalves are certain to need this important reference.

\*American Museum of Natural History

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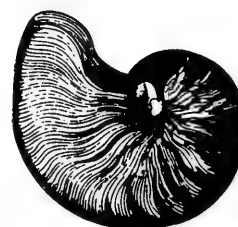
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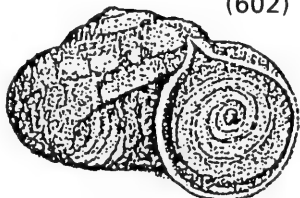
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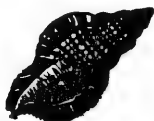


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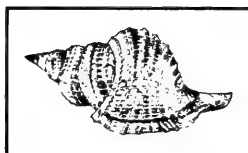
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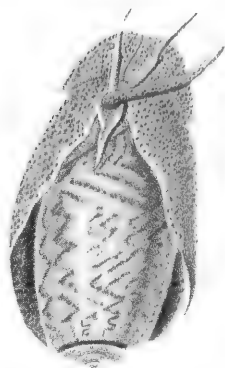
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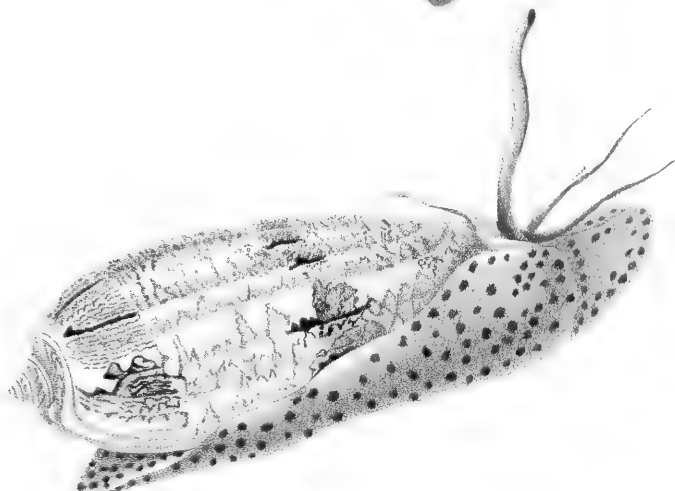
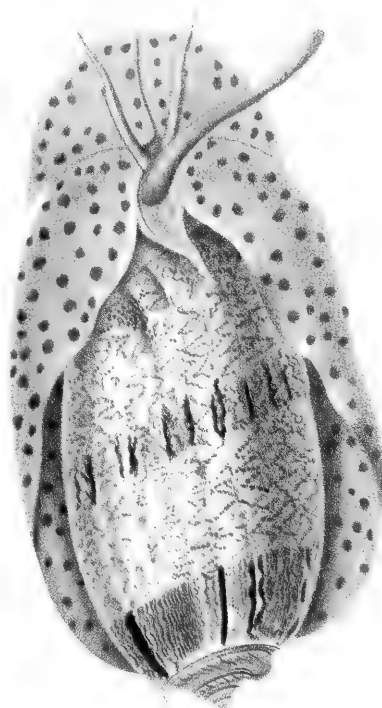
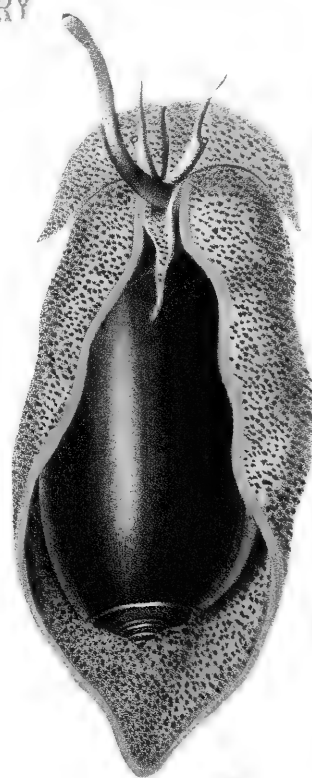
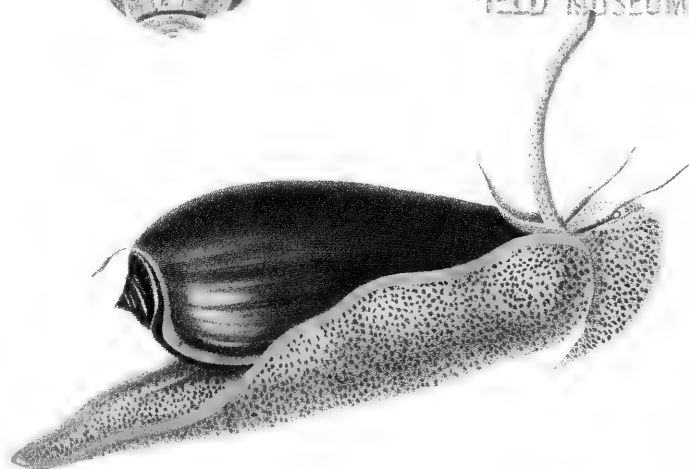
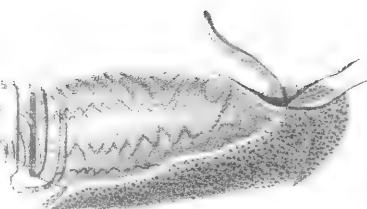
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 19, NO. 3

SEPTEMBER 1991



In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. Our membership includes novices as well as advanced collectors, scientists and shell dealers from around the country and the world.

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Memberships are for the calendar year, January through December. Late memberships shall be retroactive to January. **DUES:** (per year) INDIVIDUAL (USA, Canada, Mexico) \$12.50; FAMILY & CLUB/ORGANIZATION (USA, Canada, Mexico) \$15.00; CARIBBEAN, CENTRAL & SOUTH AMERICA (via Airmail) \$20.00; COUNTRIES OUTSIDE THE AMERICAS (Via Airmail) \$25.00. Make checks payable to CONCHOLOGISTS OF AMERICA. Please pay in US dollars with a check that has Transit Enrouting and Account Numbers printed at the bottom of check, or a money order and send to Bobbie Houchin. **RENEWALS** are sent to the **TREASURER**, Walter Sage. **BACK ISSUES** are available from Mrs. Houchin as follows: prior to 1985- \$1.00 each; 1985 to current - \$2.50 each.

**COVER:** From Jean Charles Chenu's *Illustrations Conchyliologiques, ou Description et Figures de Toutes les coquilles connues Vivantes et Fossiles*: top — *O. elegans*; center — *O. maura*; bottom — *O. textilina*. The plate is reproduced on our cover through the courtesy of The Shell Museum and Educational Foundation, Sanibel Island, Florida.

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## PRESIDENT'S MESSAGE

Happy New Year! New COA Year, that is. Your new President and Staff are in place and working on plans to improve the COA and make your hobby more enjoyable. We are thankful for your trust in us.

Each COA Convention seems to be better than those in the past, and the one in Long Island was great. You'll be getting more details from different sources later in this issue.

The COA is steadily increasing in numbers and quality. We are getting more publicity from an increasing number of sources. We are financially sound. Your officers are communicating more and getting more feedback. The Auction and the Bourse are always exciting times. The many programs are of high quality, and provide opportunities to experience shelling with the speakers and to learn new and interesting facts. We have so many reasons to be optimistic.

Your President and Staff intend to inform you on pertinent business items, plans and opportunities. We plan to have a revised Constitution and By-Laws ready for your approval early in 1992. The Executive Board approved a motion to give voting status to standing or permanent committee positions in COA Board meetings. This action will be incorporated into the revised Constitution and By-Laws on which you will be asked to vote. Don Young, a COA Past President, is the new Parliamentarian. His main job for now is to coordinate all inputs for the Revision and present it to the Executive Board in January, or before, for approval and last minute "touch-up."

The Publication Committee Chairman, Richard Goldberg, presented a plan, approved by the Executive Board, to publish special documents or reports too long for, or otherwise not suitable for, the American Conchologist. These first separate publications will be done on a trial basis.

To help you better know your new President, here are some of his thoughts:

- Good things happen when individuals band together to unselfishly devote themselves to tasks that benefit others.
- Smooth riding is usually the result of good planning, good or improved communications, good leadership and hard work.
- Hard work has its many built-in rewards, like better rest, self-confidence, acceptance, appreciation and "balanced pride."
- Shell collectors and students have an appreciation and awe for the beauty and wonders of nature's creations, especially mollusks.
- There are few if any barriers among shellers.
- Shellers are fun-loving and adventurous.
- There is no way to make everybody happy or satisfied all of the time.
- We all make mistakes, but we learn from them, learn to forgive and forget them in ourselves and others.

Your President is open to your comments.

Respectfully,

Glen Deuel

## SEND IN THOSE COA DUES NOW!

If you pay your dues right away you won't have to solve all those little puzzles you'll find scattered throughout this issue.

## STATE SHELLS DEPT.

There's a rumor afoot that the State of Washington is at work on getting a state shell named: the shell of choice is the *Ceratostoma foliatum* or Leafy Hornmouth Murex. More on this when Washington has a state shell to join its state bird, state song, state flower, tree, fruit, grass, fish, song, folk song, dance, gem, seal, flag, motto and tartan (yes, tartan!).

## OOPS!

The name of the new South Alabama Shell Club newsletter is the *Johnstonian*, not the *Johnstonean*.

*Liguus fasciatus roseatus.*

(Peggy Williams photos)

*Janthina janthina.**Euglandina rosea.*

## WHY THEY LIVE WHERE THEY LIVE Part IV

by Peggy Williams

### Drifting Along . . .

Some mollusks are found worldwide by reason of their lifestyle, rather than because of accident or current flow. These are termed "pelagic," which means living on the open ocean.

A prime example of pelagic mollusks is the genus *Janthina*, a group of snails that spend their entire life cycle floating on the ocean on a bubble raft of their own making. In fact, if they lose the buoyancy of this special raft, they will sink to the ocean floor and die. Even the bright purple eggs are laid under a bubble raft.

The *Janthina* raft is made by secreting mucus at the surface of the water and "capturing" a bit of air in the sticky substance. A series of these air pockets creates enough buoyancy to support the weight of the snail and its shell.

Prey of these unique creatures consists of jellyfish, which also float in the open ocean, especially the "By the Wind Sailor" (*Velella velella*) and the deadly "Portuguese Man-O-War," whose dreaded stinging tentacles are tasty, rather than harmful, to the snails.

Called "Purple Snails," *Janthina* species are colored for camouflage. Like many pelagic fish, they are darker on one side than on the other. Floating with the aperture up toward the sky, they present a darker purple color to seabirds hunting food on the deep blue ocean surface, while predators looking up toward the light sky shining through the water see a lighter lavender color blending with the background. They are also able to secrete a purple dye which colors the water, confusing predators.

Drifting as they do all their lives, *Janthina* shells wash up after storms on all warm beaches of the world. The following account was written by Charles T. Simpson, a great 19th century collector:

"In January, 1883, I was on a large schooner . . . and we stopped at Key West . . . After breakfast I wandered through the city and out to the beach.

"Before I reached it I noticed that as far as the eye could see, it was a mass of the most intense, glowing violet color, and on coming up to it was astonished to find that this color came from untold millions of *Janthina*, which had been washed up in the night . . . Every where, from below water to highest tide mark they were piled up, in most places, over shoe-top deep . . . shell, animal and float all of a vivid purple . . .

"I had brought no basket or sack . . . to collect in, but I could not bear

to go away and leave that vast bed of treasures without taking at least a few with me . . . I took out my handkerchief . . . I filled it with shells, animals and all, as many as it would hold. Then I took off my straw hat and filled it . . . I found so many fine specimens that I began to put them into my pockets, and . . . every pocket was bursting full. I had on a linen coat and white duck pants . . . In a little while streaks of glowing violet began to show down my clothes . . . and my shoes were filled with purple liquid. By the time I reached the city I looked like an Indian in war paint . . . At last I reached the schooner, took off and threw away my suit. . . ."

He had collected over 2,000 good shells!

### Oops! Our Fault!

Other molluscan species are distributed around the world not by their own means but by riding piggyback on man's ocean-going vessels or even because man brought them there. *Achatina fulica*, the Giant African Snail, was accidentally introduced into Hawaii, where it "took over," elbowing out native species unique to the area. To make matters worse, someone brought in *Euglandina rosea* from Florida because it's a carnivorous snail and would eat the *Achatina*. Unfortunately, it also eats native snails, and has spread over a wide territory.

Oysters are food for many animals besides man, and their shells are a handy shelter for many shy mollusk species. And as man has moved oysters to new territories for his own use, he has also brought the oysters' associated species with him. Thus, European shells have been introduced to new England and the world.

Still other mollusks become attached to ocean-going vessels (especially the old wooden ships) and ride with them across the oceans to new territories where they may settle and reproduce.

Sometimes adult mollusks may hitch rides with drifting debris; recently a half-submerged fiberglass boat floated from the U.S. middle Atlantic coast to Britain, bringing with it many examples of several bivalves found normally from North Carolina to the Caribbean. The Florida tree snails *Liguus fasciatus*, are thought to have originated in Cuba and been blown to the mainland on logs during storms.

### REFERENCES:

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## THE CEDONULLI CONES OF BEQUIA ISLAND

by Wayne Harland

The cones of the *Conus cedonulli* Linne, 1767 complex have been prized by collectors for many years. Much has been written concerning habitat, color forms, the species/subspecies validity, and island variation between specimens. In October of 1985, a definitive work on the complex was published by Danker Vink and Rudo von Cosel in *Revue Suisse de Zoologie*, a journal of the Swiss Zoological Society and the Museum of Natural History in Geneva. In this excellent, detailed treatise, some fifty specimens of *C. cedonulli* were examined, analyzed and compared to establish where variation occurs on a consistent basis. Within the *C. cedonulli* complex, Vink recognizes two additional subspecies, *C. cedonulli insularis* Gmelin, 1791 and *C. cedonulli dominicanus* Hwass, 1792. In Matthew Grote's article in the *American Conchologist* in September, 1990, he correctly surfaced the opinion that even within local populations, many color variations occur. Representatives of the *C. cedonulli* group have been identified from virtually all the islands in the Grenadines, except Bequia and Mustique (Vink referenced a *C. cedonulli dominicanus* found in the Lamarck collection, as "apparently from Mustique," but there was no reference to Bequia).

I was planning a dive excursion to the lower Caribbean, and the thought of going to the "heart" of *C. cedonulli* territory, where no previous record of collection existed, certainly assisted in my site selection process. My wife Donna, Carl Sahlberg and David Pugh eagerly joined the hunt. We did some pre-trip research, and with the help of Walter Sage and the reference collection at the American Museum, we did find records of collection at Bequia, but they were beach-collected specimens from the windward side of the island. No record or observation of live specimens could be located.

Our journey to Bequia began at Miami International Airport at 8:00 AM and ended two flights, two cab rides and a white-knuckle ferry ride later at 10:00 PM in Bequia. Exactly one hour later we were diving in a quiet bay north of our hotel courtesy of one of the most cooperative dive operators I have ever had the pleasure to visit. Bob Sachs and "Dive Bequia" literally bent over backwards to accommodate us. We had a boat and captain assigned to us, and within hours we were labeled around the island as the "crazy Americans" who only dove at night.

Our first dive was confined to depths less than 50 feet and was lackluster at best. Our visions of herds of cones gliding over the sand in shallow water were beginning to burst. Could it be that Bequia really didn't have any *cedonulli*? With a full night's rest and rejuvenated enthusiasm, we began to explore the shoreline of the island, looking for suitable habitat.

Bequia is an island of volcanic origin with a very steep shoreline

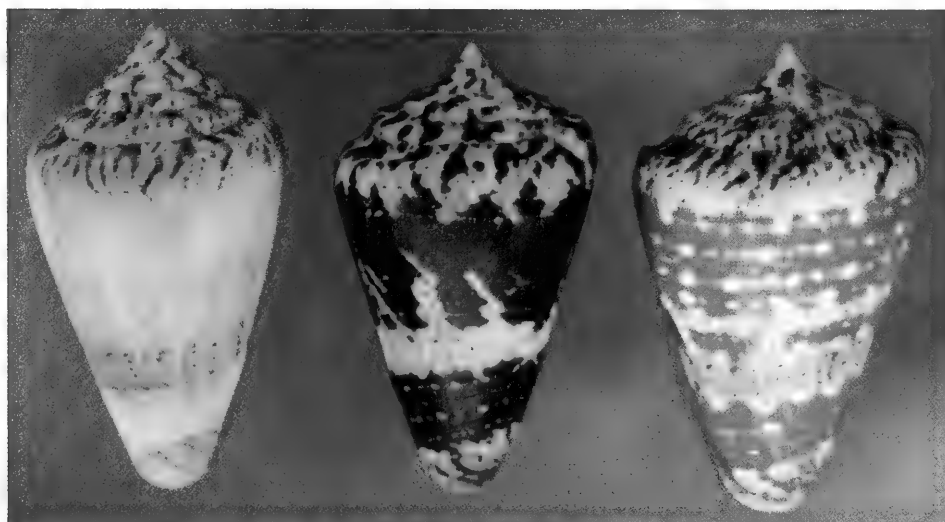


*Conus cedonulli* Linne, 1767  
The classic "St. Vincent" color form, taken live in 105 feet of water at night in fine dark sand off the north-west coast of Bequia. (Carl Sahlberg photo)

and few natural bays. It became evident that if the cones were here we would have to try deeper water. That night, we worked a deep slope that had grass down to 150 feet. This deep water was where the cones were found.

As we compared our specimens it became instantly evident that color, pattern and, to some extent, shape were highly variable. We had found shells that could be called classic "St. Vincent" *cedonulli*, and the higher-spined, pale-colored "Barbados" form, and low-spined, wide-shouldered *cedonulli dominicanus* forms, all from an area not more than a quarter mile in length. Depth was also no factor in form or

\*2549 S.E. 15th Street, Pompano Beach, FL 33062

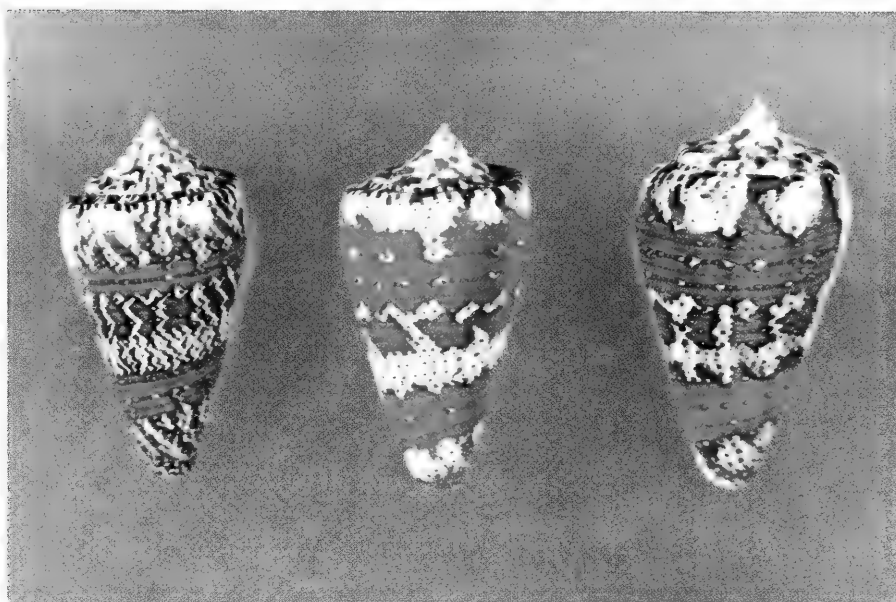


*Conus cedonulli dominicanus* Hwass, 1792

A color series from the southwest coast of Bequia near Admiralty Bay. (Carl Sahlberg photo)

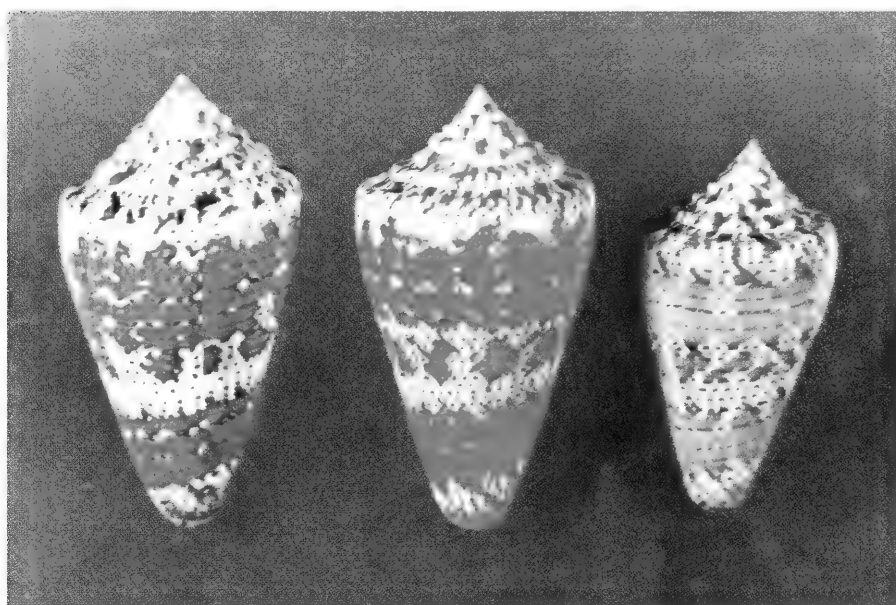
*Conus cedonulli* Linne, 1767

Another color series from the same area of the southwest coast. Note the variety in shape of the sub-shoulder on the body whorl. (Wayne Harland photo)



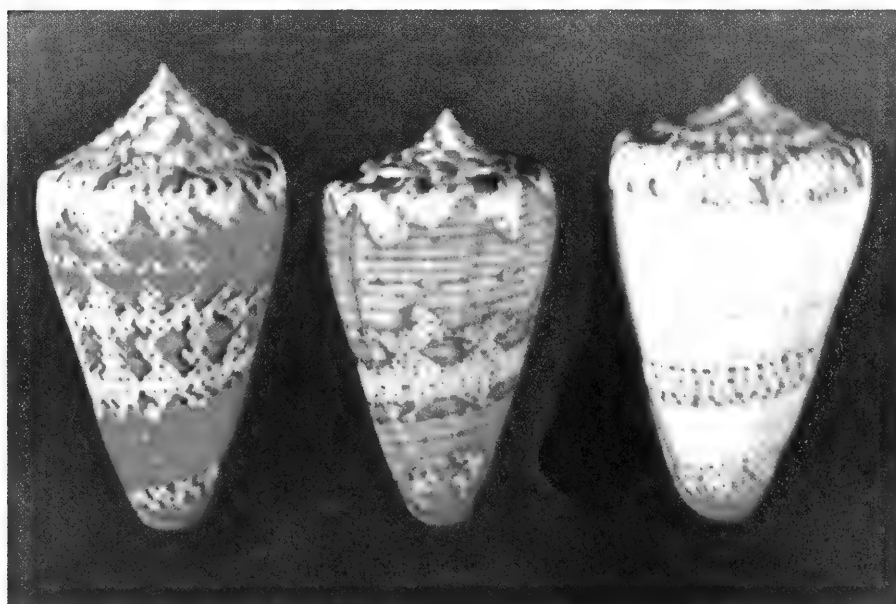
*Conus cedonulli dominicanus* Hwass, 1792

Specimens from Admiralty Bay. Note variation in patterns. (Wayne Harland photo)



*Conus cedonulli dominicanus* Hwass, 1792

Unusual color forms: yellow, a "mappa" form, and a purple/white. (Wayne Harland photo)



coloration of the shells: we found both light and dark shells in 80 feet and 140 feet. The only consistent factor was that no live shells were found in water less than 60 feet deep. Contrary to what we had heard prior to the trip, we even found shells out and actively searching for food during the day!

The other key to locating the cones is their prey, worms of the Amphinomidae class (bristle worms). When we found areas where the bristle worms were moving about on the bottom, the cones were not far away. During one night dive, I was summoned to Dave Pugh's location by a frantically waving light beam. I arrived to find him watching not

one, but two, *C. cedonulli* eating a bristle worm, one from each end! It looked like a molluscan tug-of-war. Unfortunately, on this dive, we did not have a camera, so this remarkable scene couldn't be preserved in anything but our memories.

This observation of the feeding process was the highlight of the trip and a fitting end to one of the most enjoyable and educational trips I have ever taken. The Bequia cones dramatically exhibit the variation possible within a species in a restricted geographic area, and when time and opportunity present themselves again, I look forward to returning for more exciting shelling in the Grenadines.

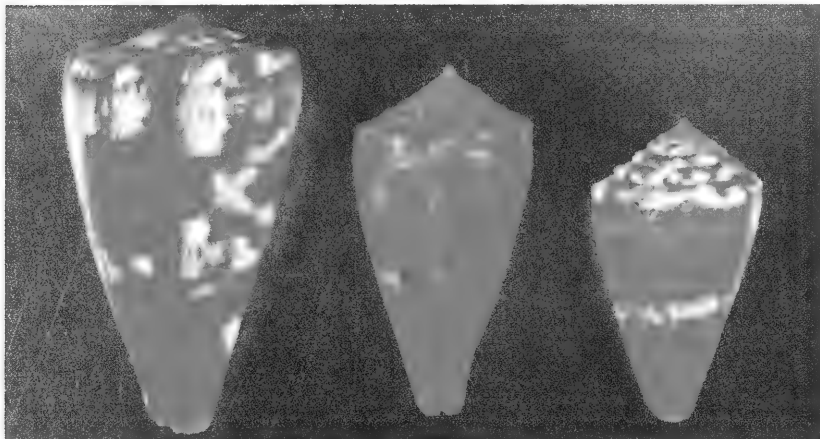


Figure 1: *Conus jucundus* Sowerby, 1877. Low-spined Bimini form and higher spined form from off West End, Grand Bahama Island. (Wayne Harland photo)

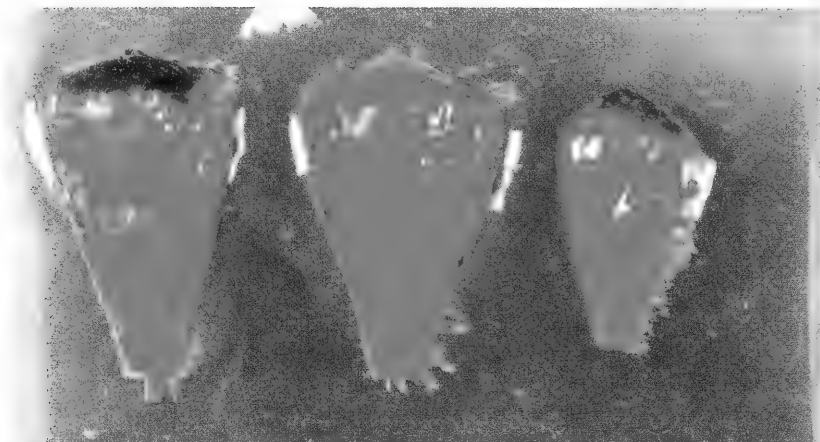


Figure 2. (from left) Bimini specimens of *Conus jucundus*, *Conus arangoi*, and *Conus inconstans*. (Wayne Harland photo)

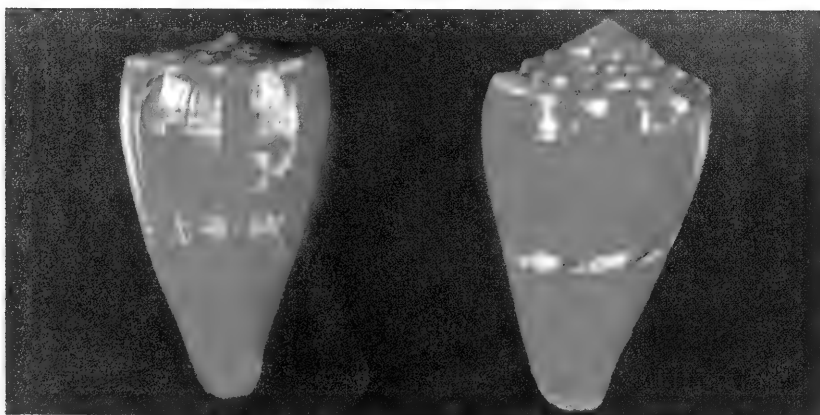


Figure 3. (from left) *Conus jucundus*, *Conus arangoi*, *Conus inconstans*. Live specimens shown ventrally to expose the animal for color comparison. Please note that the live specimens shown here are not the same specimens illustrated in Figure 2. (Wayne Harland photo)

## THE REEF CONES OF BIMINI by Wayne Harland

The island of Bimini is the closest member of the Bahama Islands to the mainland of Florida. Lying some fifty miles east of Miami, it is a popular weekend recreation spot for those traveling by boat or air. As a South Florida resident and boat owner, I have spent many weekends in those pristine waters. To shellers, the Bahamas have long been known for their beautiful and rare shells. Recently we have taken several trips to the Bimini chain and found some interesting varieties of reef-dwelling cones.

Bimini has produced a cone similar to *Conus cardinalis*, Hwass, 1792 that has tentatively been identified as *Conus inconstans* E. A. Smith, 1877. In most collecting locales, there is usually only one representative of this "Cardinalis complex" found on the reef structures. Much to our surprise, during these last trips to the Bimini chain, we found not one, but two additional representatives which could logically fall into this complex. All specimens were found in live reef areas at night in depths from 35 to 95 feet.

The first species we have identified as a variety of *Conus jucundus* Sowerby, 1877. Its color—bright red—and reef habitat coincide with similar specimens found off West End Point on Grand Bahama Island which lies 50 miles to the north. The Bimini specimens are characterized by a much flatter, depressed spire than their northern cousins.

The second species we have called *Conus arangoi* Sarasua, 1977. The original type lot of this species came from the northeast coast of Cuba, which lies some 200 miles south and is influenced by the same currents as Bimini. This species is a vivid orange with bands of brown squares along the body whorl, and a much more elevated spire. The animal color is a striking yellow-orange in comparison to the bright red of the *C. jucundus*. Examples of the soft animal parts and shells have been forwarded to the Florida Museum of Natural History for review and anatomical analysis.



## CONTEMPORARY CONCHOLOGY

by Walter Sage

American Museum of Natural History

The August issue of *Hawaiian Shell News* contains an account by Emerson & Sage documenting the circumstances surrounding our comparison of the holotype of *Dallivoluta surinamensis* with recently collected specimens from the Saya de Malha Bank, western Indian Ocean. Our determination is that all the specimens we have examined are conspecific and that the species is properly recorded from the Indian Ocean and should be called *Lyria surinamensis* (Okutani, 1982). As Emily Vokes has suggested, *Murex surinamensis* Okutani, 1982 is also from the Indian Ocean and not from the western Atlantic, as originally erroneously localized.

Several recently described volutes have escaped mention in this column. *Tractolira germonae* Harasewych, 1987, *Nautilus* 101 (1): 3-8, named for colleague Raye N. Germon from specimens taken off the South Sandwich Islands, north of Antarctica, is one such species, and the others are *Odontocymbiola simulatrix*, *Nanomelon viperinus*, and *Tractolira tenebrosa*, all Leal & Bouchet, 1989, *Nautilus* 103(1): 1-12, from off southeast Brazil.

In the January-March 1991 issue of *La Conchiglia*, Aubry describes as new *Terebra veliae*, from off southwest Australia, and *T. russoi*, from the Philippines. Correspondence with Twila Bratcher has confirmed that *T. veliae* is a synonym of *Hastula colorata* Bratcher, 1988, *Veliger* 30(4):416. Both named taxa were originally named only from dead-collected specimens — Bratcher cited 24 specimens; Aubry, four. Twila further cited a paper in the July 1990 issue of *Australian Shell News* that recorded 13 living specimens of *H. colorata* taken off Augusta, Western Australia.

We have received publication announcement of daMotta's forthcoming paper, "A systematic classification of recent Conidae at the generic level, 48 pages, 70 color photos, an updated full referenced index including about 1200 taxa with revised validity and proposed classification. "The price is stated to be "35 USD (+ postage)." We are expecting receipt of this publication in the near future and will review this important contribution when we have seen it.

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS

## MOLLUSK RESEARCH IN BERMUDA

by R. Tucker Abbott

Of the several dozen research projects being currently undertaken at the Bermuda Biological Station for Research, four deal directly with mollusks.

Breeding and raising of the edible bivalves, *Pecten ziczac* (Linnaeus, 1758) and *Arca zebra* (Swainson, 1833) is being done by Samia Sarkis from Plymouth, England. The Turkey Wing, used in Bermuda in mussel pies, reaches maturity in four years.

Penelope Barnes, a Canadian student, has found that small lucinid clams obtain sustenance from bacteria living in the gills of the clams. She found *Codakia* clams buried in mud under beds of turtle grass at a density of 1,500 per square meter.

Other research is being carried out by Dr. Susan Cook on the effects of water toxins on *Siphonaria* limpets, while Dr. S. Walker of Oregon State University is working on the "Shell use ecology and paleoecology of the purple hermit crab." Pleistocene specimens of the now-extinct Bermuda *Cittarium pica* (Linnaeus, 1758) are abundant everywhere on the island.

The annual budget of Bermuda's research station runs about 5 million dollars. Business corporations, including several oil companies, support this molluscan research.

\* P.O. Box 2255, Melbourne, FL 32902-2255. Dr. Abbott is the Founding Director of the Bailey-Matthews Shell Museum on Sanibel.



## MEET THE PRESIDENT

by Mathilde Duffy

Meet Glen Deuel, newly elected president of the COA. Glen's gentle, easygoing manner is clever camouflage for a strong, well-organized dynamo. He plans to implement many new ideas for increased growth, good relations, a great convention, and more fellowship. He stresses better communication and welcomes all letters and calls.

A devoted collector for 38 years, Glen became interested in shells when he was an engineer for the Army in Huntsville, Alabama in the 1950's. He and his team went to Cape Canaveral on alternate six-week periods to prepare and fire the first Army missiles, among which was the Redstone. The public had no access to the shell-laden beach at that time, so Glen collected to his heart's content. A few years later he transferred to NASA, working in the Space Program until his retirement in 1979.

He and his wife Marion met at the University of Alabama and were married 42 years ago. Their two children live in Phoenix, Arizona with their families. Marion shares his interest in shells, and, inasmuch as she finds them in the living room, bathroom, basement, storeroom and garage, she feels outnumbered and compelled to love them (happily, of course). Sound familiar?

Glen collects many of his shells during vacation, while others have come from SCUBA diving, snorkeling, gifts and purchases. Although he likes all varieties, he is particularly interested in microscopic shells collected in grunge which he'll place on glass slides for in-depth inspection. He constantly studies all aspects of conchology and keeps well-informed through his extensive collection of books.

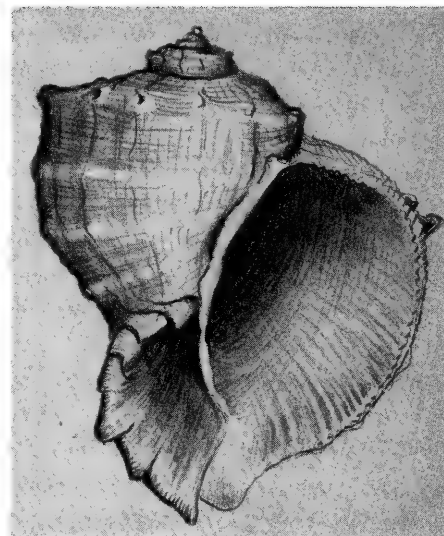
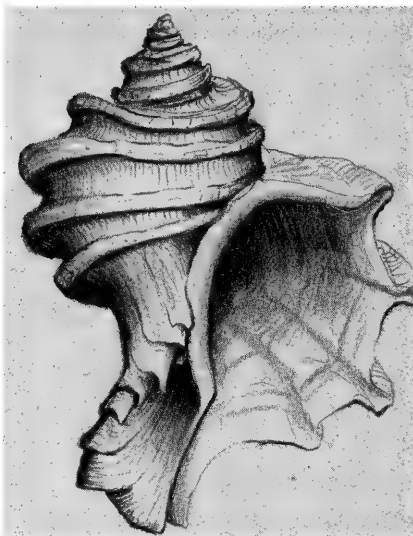
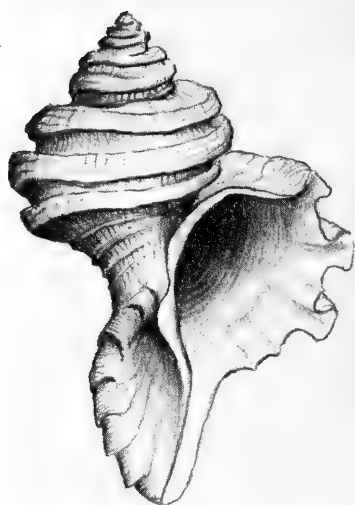
The Deuels found they were not as isolated from other shell enthusiasts as they'd imagined when, along with Travis Payne and Barbara Elliott, they formed the North Alabama Shell Club. After publicizing it in the newspaper, they attracted many other avid shellers. Glen presided for two years, and Marion served as Secretary-Treasurer.

After joining COA in 1983, both Glen and Marion have attended every convention. Glen has served as Trustee, Parliamentarian and Vice-President.

Glen is a popular speaker at schools, libraries, senior centers and civic clubs and shows much generosity in this capacity. After the Trinity Methodist Church sanctuary in Huntsville was destroyed by a tornado in 1979, Glen donated a Giant Clam to be used for baptisms. The new font now has a place for the shell to be inserted.

COA is fortunate to have this very generous and caring Southern gentleman as its president. He brings such a number of fine qualities to the office. And one thing is certain — he'll bring out the best in all of us and leave the organization a better one than he found it. Glen's just that sort of man.





*Ecphora tricostata* (Martin, 1904) — Pungo River Formation. 6cm. *Ecphora quadricostata* (Say, 1824) — Yorktown Formation. 6cm. *Rapana rapiformis* (Born, 1778) — Recent, for comparison with *Ecphora*. 9cm.

## THE JOYS OF FOSSILING: AT A NORTH CAROLINA PHOSPHATE MINE.

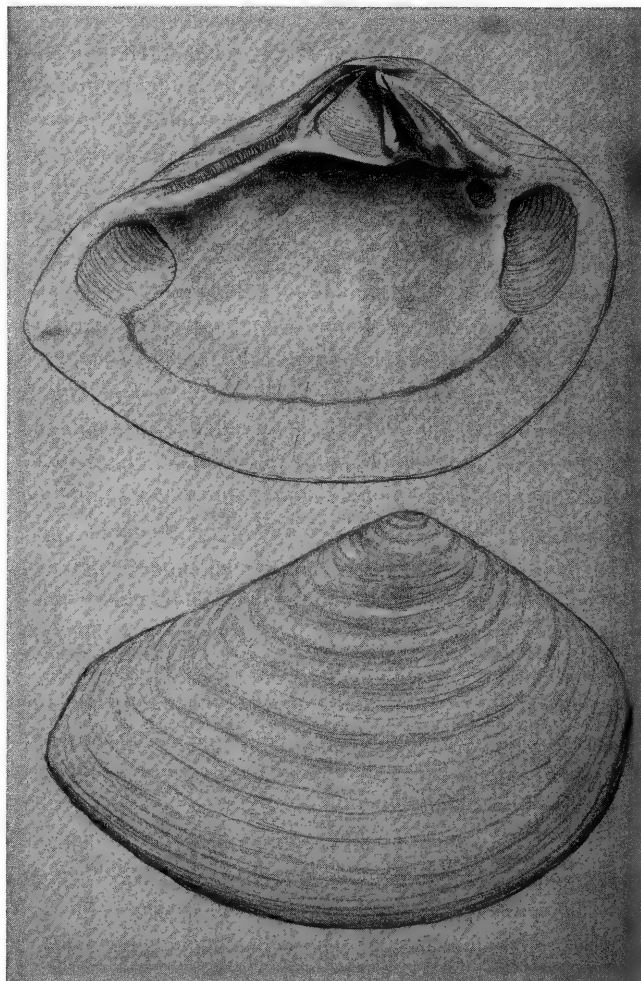
By John R. Timmerman

North Carolina and its beaches start many people along the road to a shell collecting hobby. But it can also stimulate an interest in fossil collecting. Fossil collecting has many advantages over collecting recent shells. The collector can obtain a large variety of species existing over millions of years in a relatively small area. Deposits representing deep and shallow water can be collected near each other and in a short time. And the fossils have lost most or all of their color, giving rise to a new kind of molluscan beauty: the lack of color serves to emphasize the fantastic sculpture or form of a given species. The appeal of the bold ribbing in a *Chesapecten jeffersonianus* is hard to match in modern pectens. Fossil collecting has become a passion for me since deep water and tropical species are readily available without a great deal of travel.

I recently visited the Texasgulf Phosphate Mine in North Carolina. It proved a perfect place for me to partake of the joys of fossil collecting. Several ages of deposits are present at the site, perhaps the best known of which is the Yorktown, considered to be early Pliocene in age. Pungo River, Chowan River and James City Formations are also found here (see chart). Pungo River is older than the Yorktown and Chowan River and James City Formations are younger. These deposits represent a variety of shallow ocean or coastal environments during a warmer time in the history of the earth than today's climate. The environment is thought to have been similar to modern shallow sounds such as Chesapeake Bay and near-shore areas of open ocean. The presence of terrestrial mammal fossils indicates the proximity of dry land to these environments. Mollusks are common-to-abundant, as are marine vertebrates.

Most of the fossils are from the Yorktown, Chowan, and James City Formations. From these deposits come such well-known molluscan fossils as *Ecphora quadricostata* and *Chesapecten*. Many of the fossils in this deposit are also common to other deposits north and south of the area, because at various times they were part of a continuous coastline. (See *American Conchologist*, June, 1987 p. 3).

The *Ecphoras*, extinct by the middle Pliocene, are considered relatives of the modern *Rapana*. Close examination of the siphonal fasciole of the shell reveals a similar growth pattern between *Ecphora* and the modern *Rapana*. The thickness and number of the ribs varied from species to species. The shells consist of two layers of material. The outer layer, calcite, is translucent brown, presenting a rather beautiful appearance, different from most other fossils of this deposit.



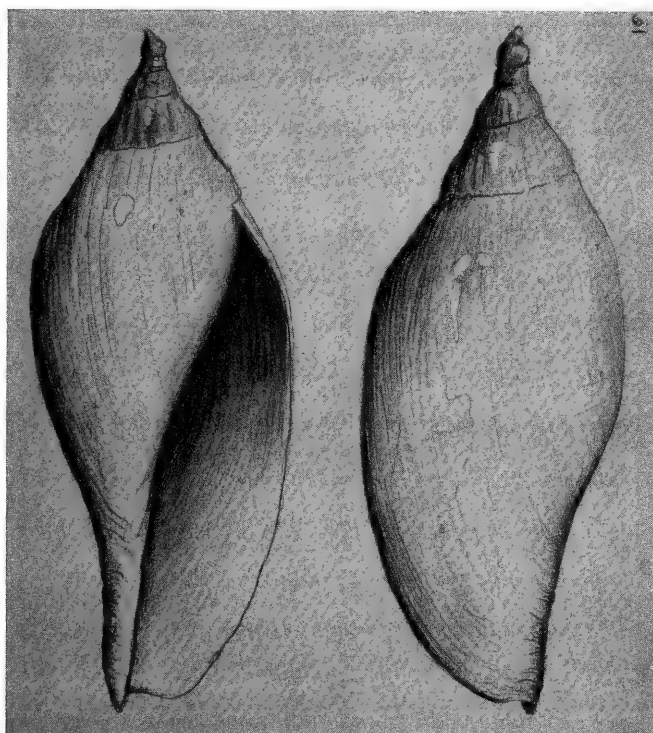
*Marvocrassatella kauffmani* Ray, 1987 — James City Formation. 11cm.



*Chesapeake madisonius* as found, Yorktown Formation.



Fossils littering surface of spoil piles — mollusks and dead coral.



*Volutofusus typus* Conrad, 1863 — James City Formation. 3.5cm.

The inside of the shell is lined with a thin opaque white layer of aragonite, but the aragonite layer is often leached away, because aragonite has an unstable nature. *Ecphora tricostata*, from the Miocene, had three distinct ribs as its name implies. Some specimens have weak fourth and fifth ribs. Since no soft tissues are available for study, as is the case with all fossils, definite speciation must be determined by shell structure and age of deposit from which they came.

Occurring with *Ecphora* from the Miocene through the early Pliocene are the convex scallop shells known as *Chesapectens*. Some *Chesapectens* attained huge proportions, even growing to the size of dinner plates. In some cases several species coexisted in the same habitat. They reached their apex in both size and number of species during the early Pliocene, and they disappeared at the same time as the *Ecphoras*.

Exact classification of different *Chesapeecten* species is difficult due to poorly preserved internal structures such as muscle scars. The byssal notches and shape of the ribs have been used as guides for differentiation, but the number of ribs can vary within a given species. Other large pectens lived with the *Chesapectens*, including *Argopecten eboreus*, and *Placopecten clintonius* which is very similar to the modern *Placopecten magellanicus*.

The Chowan River and James City Formations at this locale are similar in fauna to deposits in central Florida. Mollusks are more abundant in these deposits than in the Yorktown, but less plentiful than in similar-aged Florida deposits. Many mollusks in these strata are familiar to the Florida fossil collector, but some species have subtle variations from their Florida counterparts. In other instances, Florida species are absent here, just as there are fossils here that are not found in Florida.

*Volutofusus typus* of the early Pleistocene is the sole volute from

## GEOLOGIC AGES AND FORMATIONS

Geologic Age	Period of Age	Years Before Present	Name of Formation
Miocene	Middle + Late	26-5 Million	Pungo River
Pliocene	Early	5-1.8 Million	Yorktown
	Late		Chowan River
Pleistocene	Early	1.8 Million - 11,000	James City



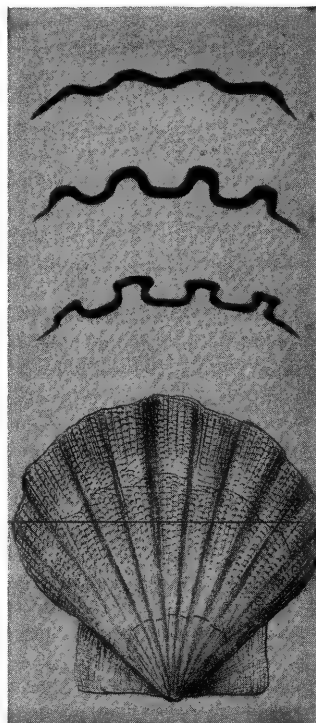
*Epitonium fractum* Dall, 1927 — James City Formation. 3.5cm.

this deposit. Its shells are fairly common at Texas Gulf. In shape they are similar to modern Scaphellas, with a prominent protoconch. Their shells are coated with an overglaze similar to some West African Cymbiums. They grew quite large, with shells of 15 centimeters not uncommon.

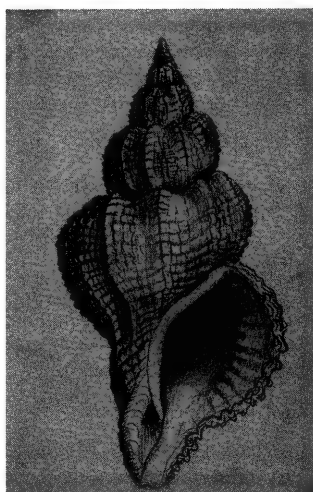
Another giant found with the Voluta is *Marvacrassatella kauffmani*. In shape these bivalves are very similar to *Eucrasatella* but grew to an amazing 11 centimeters or more in diameter. These mollusks have been designated a guide fossil, a species that has been identified as being characteristic to a specific deposit or formation, and so a marker for that deposit or formation. *Marvacrassatella kauffmani* is characteristic to the James City Formation. *Ecphora quadricostata* is a guide for the Yorktown Formation.

Does this mean that any time a collector finds a *Marvacrassatella kauffmani*, he can be sure he is collecting in the James City formation? Not necessarily. One of the difficulties facing a beginning fossil collector is the phenomenon of erosion and redeposit. Just as fossils are being exposed by erosion along rivers, streams, and ocean fronts today, so it happened in the past. Earlier fossils were eroded out of their original beds, mixed with new material of the period of erosion, perhaps with the remains of animals living then as they died and fell to the bottom, and the entire mixture was redeposited. This process is called reworking. Thus it is possible to find fossils of different ages in the same deposit. Guide fossils from two or more periods in a single deposit will indicate different ages of material that became mixed, a reworked deposit. It is even possible for the material from one deposit to be completely carried away by erosion. In such a situation there may be a vast period of time not represented in the strata in a given locale. (In a sense the waste piles from mining operations can be considered a man-made form of reworking.)

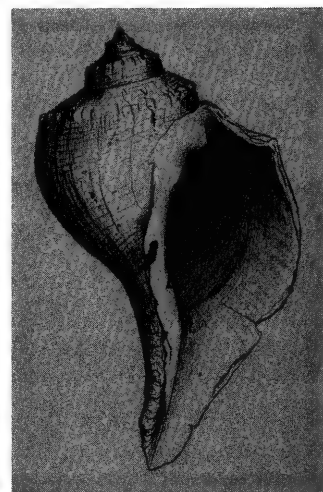
Fossils in the phosphate mine deposits were often concentrated in a given area by water currents, just as modern shells are. Some areas of a given sediment can be poor in fossils while others will be saturated. Chesapectens tend to occur like this. Many of them have barnacles,



Cross sections of three *Chesapeecten* taxa from the Yorktown Formation. a: *Chesapeecten madisonius* (Say, 1824); B: *Chesapeecten jeffersonius jeffersonius* (Say, 1824); C: *Chesapeecten jeffersonius septenarius* (Say, 1824). The illustrated shell is *C. jeffersonius* is the oldest of the three; the others appeared about the time it disappeared.



*Urosalpinx suffolkensis* Gardner, 1948 — James City Formation. 3cm.



*Busycon concinnum* Conrad, 1873 — James City Formation. 13cm.



*Pterorhytis conradi* (Dall, 1890) — James City Formation.

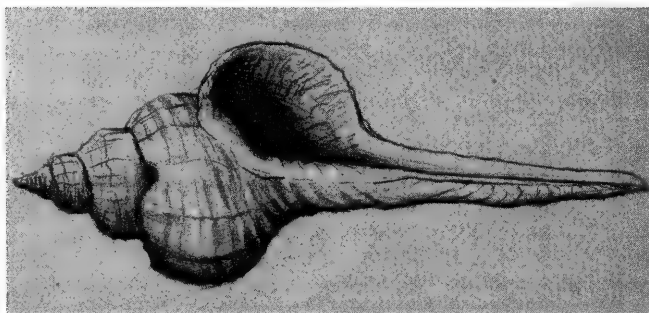


worm tubes and small oysters attached to their inner surfaces indicating death before burial. Thus they were more subject to being piled up by currents than living individuals would be. This is one of the most interesting aspects of fossil collecting: the way it enable the student to observe environmental effects of the past and their similarity to those of the present.

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Fossil Collecting in North Carolina. Bulletin #89. By J. G. Carter, P. E. Gallagher, R. Enos Valone, and T. J. Rossbach. Dept. of Natural Resources and Community Development, Division of Land Resources Geological Survey Section, Raleigh, North Carolina 1988.



*Heilprinia caloosaensis malcolmi* Ray, 1987 — Formation uncertain. 8cm.

#### PIN MONEY

The New York Shell Club announces that it has received a new supply of New York Shell Club pins. "Because inflation has caught up with us, the new price is \$3.75 each, when purchased by mail, \$3.50 if bought at a NYSC meeting." Write to Theta Loubacos, NYSC Treasurer, 66 W. 94th Street, Apt. 20C, New York, NY 10025.



## REVIEWS:

**Shells—Classical Natural History Prints.** S. Peter Dance and David Heppell, 1991. Studio Editions, London. Hardback (10-1/2 X 14"), 128 pp., 60 colored pls. Distributed in the Americas by American Malacologists, P.O. Box 1192, Burlington, MA 01803.

This book is more than just a collection of large beautiful shell prints selected from the cream of three centuries of natural history publishing. It is an illustrated history of conchology, with detailed accounts of the collectors and artists behind each print. Only in a great center of learning, such as the British Museum or the Smithsonian, would one find a multimillion dollar library containing these illustrations.

Armchair conchologists and lovers of antique books will enjoy and treasure full-color prints of shells from the first shell book issued with hand-colored plates by Nicholas Geve in 1755; from Seba (1758); Regenfuss (1758); Knorr (1755); Born (1780); Martini and Chemnitz, (1780); Thomas Martyn (1789); the bivalve anatomy of Poli (1795) and many other classics.

From down through the ages, Dance and Heppell give examples and recount an intimate history of such famous works as the huge Glory-of-the-Seas paintings from Sowerby's Tankerville Catalogue (1825); the jewel-studded Umbrella Squid from Orbigny (1835); a dozen variations of the West Indian Sunrise Tellin from Chenu (1843); living Mexican *Euglandina* snails from Fischer and Crosse (1870); photographs of 30 *Liguus* tree snails from Pilsbry's rare 1912 monograph; and an example from Hirase's extraordinary "accordion" book of 1000 hand-printed Japanese woodcuts. — R. Tucker Abbott

**Seashells of Southeast Asia** by R. Tucker Abbott, 1991. 145pp., 52 color plates (461 species illus.) Tynron Press, Scotland. ISBN 1-871948-96-7. Paperback. (6.95) \$14.95, postage free, from American Malacologists, P.O. Box 1192, Burlington, MA 01803.

For a long time there has been a need for an identification manual of the common marine mollusks of southeast Asia. The species in the areas of Vietnam, Thailand, Malaysia and western Indonesia are a strange mixture of the Indian Ocean and Gulf of Siam faunas. Fifty-two exquisite color plates, illustrating 461 gastropods and bivalves, fill this gap. Each species is described, with its full scientific and common name, habitat and geographical range.

Additionally, Dr. Abbott has written an interesting history of the malacological studies of this important crossroads between China, India and Australia. He describes for the field collector over ten types of habitats, explains the nature of "continental and oceanic species," and tells about Asia's vast efforts in the mariculture of mollusks. He emphasizes the beneficial role of shell collecting and champions conservation and sensible sampling of mollusk populations.

If you buy, trade or personally collect shells in the Far East or southwest Pacific, this inexpensive and up-to-date guide will serve you well.

— Walter E. Sage, III, American Museum of Natural History, N. Y.

Fossil collectors will be interested to learn that a new fossil work is available: **New Gastropods From The Plio-Pleistocene of Southwestern Florida And The Everglades Basin** by Dr. Edward J. Petuch of the Geology Department of Florida Atlantic University. Seventy-six new gastropods are described. Sixty-five of the new species are euhaline forms that inhabited a variety of biotypes such as coral reefs, Turtle Grass beds, sand flats and deep lagoonal bottoms. Eight of the new species are estuarine inhabitants of coastal brackish water lagoons and mud flats and mangrove forests. Three of the new species are fresh water forms that inhabited Pleistocene Lake Okeelanta. The work is Special Publication Number 1 of the newly formed W. H. Dall Paleontological Research Center at Florida Atlantic University. Copies of the publication can be ordered for \$12.00 a piece from the Dall Center, Department of Geology, Florida Atlantic University, Boca Raton, Florida 33431. Checks or money orders should be made payable to FAU Foundation — Dall Center.

## News for *Pecten* collectors — a new book and two new *Nodipecten* species:

Walter Sage

American Museum of Natural History

The Fall 1991 American Malacologists, Inc. book catalog just issued has the following announcement: "Coming soon in 1992, exclusive distribution in U. S., **Guide Book to Pecten Shells** by A. Rombouts. Edited by Dr. H. E. Coomans, H. H. Dijkstra and R. G. Moolenbeek, here at last is an extensive guide to the Pectinidae of the world. Hundreds of valid species in full color photos by P. L. van Pel. 184pp., 29 color plates. \$40.00." We look forward to seeing this book in print.

We have just received a paper published earlier this year by Dr. Judith Terry Smith, entitled "**Cenozoic giant pectinids from California and the Tertiary Caribbean Province**," U. S. Geological Survey Professional Paper 1391, 155pp., 38 b/w plates. Available from Books and Open-File Reports Section, USGS, Federal Center, Box 25425, Denver, CO 80225. Most of the species here discussed are fossil, but there is important data presented on living species of *Lyropecten* and *Nodipecten*, which the author considers distinct, but closely related, genera. *Lyropecten magnificus* (Sowerby, 1835) is recognized as the only living species in this genus, and is here recorded from the Galapagos Islands and a single juvenile is recorded from Colombia.

The author makes the following statements about the genus *Nodipecten*: "*Nodipecten* is primarily a Tertiary Caribbean, tropical Pacific, and western Atlantic genus. The western Atlantic is divided into two provinces on the basis of living species or subspecies of *Nodipecten*." *N. fragosus* (Conrad, 1849), the scallop popularly known as the "Lion's Paw," lives in the warm, temperate Gulf of Mexico and north to Cape Hatteras. *N. nodosus* (Linnaeus, 1758) is found in the tropical Caribbean and as far south as Rio de Janeiro, Brazil. *N. fragosus*, the "Florida form," is separated from the Caribbean form, *N. nodosus*, by "its fewer ribs, finer macrosculpture and greater tendency to develop nodes on both valves." *N. nodosus* is closer to *N. corallinoides* (D'Orbigny, 1839), a dwarf form living around the islands off the continental shelf of northwest Africa. On the Pacific coast, "*Nodipecten* species define two provinces: the Pacific-Panamic between the Tres Marias Islands, Mexico, and Peru, and the Gulf of California and western Baja California peninsula." The northern species, *N. subnodosus* (Sowerby, 1835), occurs in the Gulf of California, while the southern form, here differentiated as *N. arthriticus* (Reeve, 1853), lives from the Tres Marias Islands, Mexico to Peru. Distinguishing features are the one more rib, "tendency toward grouping about the central space in right valves, and an atypical left-valve node scheme" of *N. arthriticus*.

This commentator cannot help but note that there is no hint of ecological or anatomical data in this presentation, and wonders if the data presented are an adequate foundation for separating what we have considered to be a single species each in the Atlantic and Pacific Oceans. Anyone having additional data is urged to communicate this information, for it is certain that only with a more complete range of data can we determine how many species there really are.

### UNSCRAMBLE THE LETTERS TO FIND A SECRET MESSAGE FROM COA!

SIT OCA EDUS EMIT!

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YAP ROYA SUDE WON!

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**Table 1 — The total land area in square miles of the continents in the Northern Hemisphere and the Southern Hemisphere.**

	Northern Hemisphere
Eurasia	21,189,000
North America	9,416,000
Two-thirds of Africa	7,784,000
One-sixth of South America	1,147,000
Total in square miles	39,536,000
	Southern Hemisphere
One-third of Africa	3,893,000
Five-sixths of South America	5,734,000
Antarctica	5,100,000
Australia	2,967,909
Total in square miles	17,694,909

**Table 2 — Latitudinal distribution of the continental shelf area in square miles converted from square kilometers (data summarized from Hay and Southam, 1977).**

Latitude	Northern Hemisphere	Latitude	Southern Hemisphere
90°N	1,552	0°	532
70°N	1,123	10°S	851
60°N	1,104	20°S	232
50°N	460	30°S	2,119
40°N	364	40°S	362
30°N	956	50°S	132
20°N	516	60°S	0
10°N	993	70°S	145
0°		90°S	
Total in sq. miles	7,068	Total in sq. miles	4,373

## PRESENT LOCATION OF CONTINENTS AND OCEANS AS RELATED TO THE GEOGRAPHIC DISTRIBUTION OF MARINE BIVALVES

by David Nicol and Douglas S. Jones

It has long been known that there is much more land in the Northern Hemisphere than there is in the Southern Hemisphere. In fact, the amount of land in the Northern Hemisphere is more than twice that of the Southern Hemisphere. Ocean water covers 70.8% of the surface of the earth — 60.7% in the Northern Hemisphere and 80.9% in the Southern Hemisphere (Sverdrup, and others, 1946).

An atlas of the world gives the area in square miles of the continents. These data are summarized in Table 1. From the figures cited in Table 1, one would expect more species of land and fresh-water molluscs in the Northern Hemisphere than in the Southern Hemisphere because of the much greater land and fresh-water areas. This expectation is increased if one eliminates Antarctica, which is devoid of land and fresh-water molluscs. This reduces the continental land area in the Southern Hemisphere to only 12,594, 909 square miles.

The distribution of species of shallow-water marine bivalves is somewhat less apparent. Shallow water is here defined as a depth of no more than 200 meters. One finds most of the shallow water along the margins of the continents known as the continental shelves. Geologists consider a continental shelf as a part of a continent because they both have similar sediments and rock formations. Further large shallow-water areas occur around large islands near the continents as, for example, the British Isles and the East Indies.

The area of the continental shelves of the world was calculated by Hay and Southam (1977) who reported the information by increments of latitude (Table 2). Based upon their data, the Northern Hemisphere has 7,068 square miles of continental shelves (almost 62%) whereas the Southern Hemisphere has 4,373 square miles of continental shelf (slightly more than 38%).

A more detailed examination of Table 2 reveals several facts which affect the distribution of shallow-water bivalves. The total area of shallow water at 50° to 90° latitude in both hemispheres is 4,056 square miles. This includes an area which has almost all cold temperate and cold water. The area of shallow water in the Northern Hemisphere comprises 93% of the total amount but only 7% of the total amount in the Southern Hemisphere. Thus shallow-water migration of benthic warm-water genera and families to colder water in the Northern Hemisphere is relatively easy whereas it is exceedingly difficult in the Southern Hemisphere because of the paucity of shallow water at or near Antarctica.

The continental shelf or shallow-water area in the lower latitudes is somewhat different than it is in the higher latitudes. The total amount of shallow water from 30° latitude to the equator in both hemispheres is 4,100 square miles. Of that total, 60% is found in the Northern Hemisphere and 40% in the Southern Hemisphere. This area includes the tropics and also warm temperate regions, and has a diverse shallow-water bivalve fauna. It should be noted that almost all of Florida lies within this region, which explains the rich molluscan fauna found in the shallow water surrounding the state.

The warmest water is generally found from 20° latitude to the equator in each hemisphere. This region is below the Tropic of Cancer and the Tropic of Capricorn and is characterized by little fluctuation of surface water temperature throughout the year. The region is called the tropics and has the richest shallow-water bivalve fauna. The total shallow-water area of this region in both hemispheres is 2,892 square miles of which 52% occurs in the Northern Hemisphere and 48% in the Southern Hemisphere. Based solely upon the area of continental shelves, we might predict that the marine shallow-water bivalve fauna of the Northern Hemisphere would be slightly larger than that of the Southern Hemisphere.

In order to test this hypothesis, we considered a sample of shallow-water marine species of bivalves taken from Abbott and Dance's *Compendium of Seashells* (1982) except for the Ostracea. For the Ostracea, we used Harry's (1986) monograph on the geographic distribution of the living species within the superfamily. The sample consisted of a total of 980 species. Bivalve species living wholly at depths greater than 200 meters and subspecies were not counted. The question that has to be considered is — how good is the sample?

Boss (1971) has estimated that there are about 7,500 living species of bivalves. His work is much more accurate than earlier estimates of the number of living bivalves and, for that matter, of all living molluscs. Most estimates of living molluscan species are about one-half too high. Most monographic studies of molluscan genera, families, and superfamilies will probably reduce the estimated number of species within the genus, family, or superfamily. For example, Harry's splendid study (1986) of the living species of Ostracea has reduced the number of species from Boss's estimate of 50 to 36.

If one subtracts 1,500 species of fresh-water bivalves from Boss's final estimate of 7,500 living species, he will be left with an estimated 6,000 species of marine bivalves. Further elimination of at least 500 deep-water species will reduce the number of shallow-water species to 5,500. Therefore, Abbott and Dance's sample is about 18% of all shallow-water species. We think that the sample size is adequate for a

\*Dr. David Nicol, Professor Emeritus, University of Florida, Box 14376, University Station, Gainesville, FL 32604. Dr. Douglas Jones, Dept of Geology, Florida State Museum, University of Florida, Gainesville, FL 32611.

general analysis of the geographic distribution of species between the Northern and Southern Hemispheres.

The total number of living species of bivalves in the sample in the Northern Hemisphere is 790 and in the Southern Hemisphere 585. Many species live in both hemispheres. Slightly more than 57% of the species recorded live in the Northern Hemisphere and slightly less than 43% live in the Southern Hemisphere. Of the 36 species of oysters that Harry (1986) recorded, 54% live in the Northern Hemisphere and 46% live in the Southern Hemisphere. However, most species of oysters live in warm, shallow water. Of the 36 species of oysters, only six live in cool, temperate water — five in the Northern Hemisphere but only one in the Southern Hemisphere.

The largest families of living marine bivalves are the Veneridae, Tellinidae, and Pectinidae. The Veneridae and Tellinidae are almost wholly confined to warm, shallow water, and to a slightly lesser extent, so are the Pectinidae. The Cardiids and Lucinids are two additional large families that are almost all confined to warm and shallow water.

The three coldest water faunas each have their own peculiar features. The Antarctic bivalve fauna is dominated by three families — the Limopsidae, the Philobryidae, and Cyamiidae (Nicol, 1970). These three families are absent from the Arctic Ocean. Venerids, Tellinids, Cardiids, and Lucinids are not found in water surrounding the Antarctic continent. The lack of much shallow water surrounding Antarctica and the cold-water currents have apparently isolated the bivalve fauna for several million years and have produced the peculiarities that one sees today. The Arctic bivalve fauna is a more normal one. A few species of Cardiids, Tellinids, and Venerids are present. These basically warm-water families have been able to move northward owing to

the great amount of shallow water in the high northern latitudes. Both cold-water faunas have about the same number of species, apparently no more than 70 (Nicol, 1967). The richest bivalve fauna occurs in the Philippines, southeast Asia, and the East Indies.

The deep sea, including the abyssal and hadal zones of the ocean, has its own peculiar bivalve fauna. This fauna is dominated by Protobranchs (Nuculids, Nuculanids, and Malletiids) and Septibranchs (Poromyids, Verticordiids, and Cuspidariids) (Knudsen, 1970). Venerids, Tellinids, Cardiids, and Lucinids are also absent from the deep sea. The three coldest water faunas are characterized by species of small size, many of them less than 20 mm and almost all less than 100 mm. The largest bivalves, particularly the Tridacnidae (giant clams), are confined to warm and shallow water.

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## 1991 COA GRANT AWARDS ANNOUNCED

COA Grants and Scholarships Chairman R. Tucker Abbott has announced the recipients of grant awards for the coming year. A record \$5010.00 in grants were awarded. It has been noted with pride that, including the 1991 grants, COA has awarded \$19,060 over the 7-year life of the Grant Program.

Eight applicants were selected from a field of 24 because of the quality of their project, sensibleness of their proposed budget, with consideration being given to the geographical source of the request and whether or not the applicant was a non-salaried student.

The recipients and their grant awards are as follows:

- \* Fabio H.A. Costa of Brazil on "Anatomical and Biological Study of the *Conus jaspideus-mindanus-anaglyptus* Complex." \$750.00.
- \* Lisa H. Janke, master's student at the Ohio State University on "Growth Rates and Shell Width of *Lampsilis radiata* in Different Habitats." \$400.00.
- \* Timothy McClanahan, visiting professor at Fla. Inst. Technology on "Florida Keys Epibenthic Prosobranchs: the Role of Stress on Community Structure." \$750.00.
- \* Steven A. Osborn, doctorate candidate at Moss Landing Marine Lab., California for "Identification of Cephalopod beaks of California." \$500.00.
- \* Guido Pastorino of Argentina on "Predatory Behavior of *Trophon* on Patagonian Mytilidae." \$750.00.
- \* Dr. Gustav Paulay of the Smithsonian Institution and the University of Guam, on a "Revision and Relationships of *Proxichione* and other Australian Venerinae." \$750.00.
- \* Dr. Richard Squires of Northridge, CA on "Molluscan Paleontology of the Eocene Tepetate Formation, Baja, California." \$360.00.
- \* Timothy Standish, a doctorate student from George Mason University, Virginia, on the "Evolutionary Genetics of Donacid Clams." \$750.00.

Recipients of these grants will be asked to submit a short, popular account of their completed research to *American Conchologist*.

For information about the COA Grants and Scholarships Program, please contact Dr. Abbott, P.O. Box 2255, Melbourne, FL 32902.

## COLLECTION MANAGER, DIVISION OF INVERTEBRATES FIELD MUSEUM OF NATURAL HISTORY

Field Museum of Natural History is seeking a Collection Manager in the Zoology department's division of Invertebrates. (The collection consists primarily of mollusks, including one of the largest shell collections in the U.S.).

Duties include: maintenance of large invertebrate collection (including preservation, storing and labelling); development and maintenance of computer records and reports; identification and sorting of specimens using technical literature; performing collection-based study such as generation of type catalogues; responding to outside collection-oriented inquiries; and training and supervision of technical staff and volunteers in the processing and maintenance of specimens and collection data.

Qualifications include: Bachelor's degree (with extensive experience) or higher degree in biology or related field, must possess background and interest in invertebrates, preferably mollusks. Experience with natural history collections and computer databases preferred. Position also requires excellent interpersonal and organizational skills with strong attention to detail.

Applicants should send curriculum vitae and letter describing experience and qualifications to Carrie Peters, Personnel Department, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605.

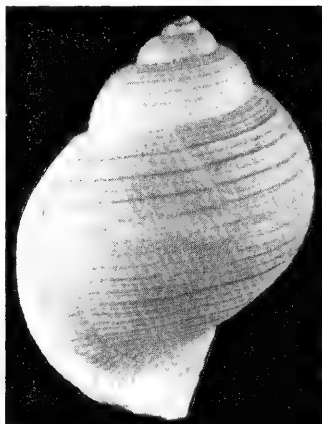
**John Elliott, husband of 1990-91 COA Secretary Barbara Elliott, passed away on July 11. Our love and our condolences go out to Barbara and her family in this difficult time.**

## WESTERN ATLANTIC TONNOIDEA

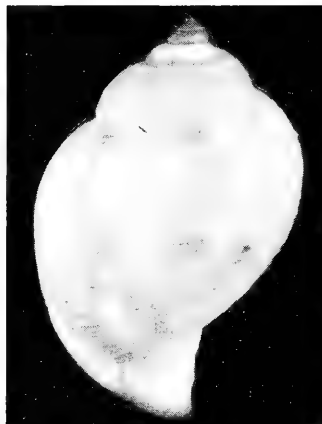
by Kevan and Linda Sunderland



*Eudolium* species. 51mm. 130 fms., Key West, Florida.



*Eudolium crosseanum* (Monterosato, 1869). 72mm. 90 fms., Dry Tortugas, Florida.



*Eudolium thompsoni* McGinty, 1955. 41mm. 130 fms., Key West, Florida.



*Ficus atlantica* Clench & Aguayo, 1940. 35mm. 80 fms., Bermuda.



*Ficus carolae* Clench, 1945. 78mm. 35 fms., Gulf of Campeche, Mexico.



*Ficus communis* Roding, 1798. 95mm. Beach, Cape Sable, Florida.



*Ficus howelli* Clench & Farfante, 1940. 51mm. 85 fms., Bermuda.



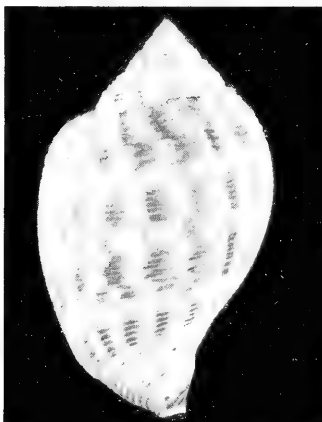
*Ficus pilsbryi* (B. Smith, 1907). 80mm. 30 fms., Gulf of Mexico.



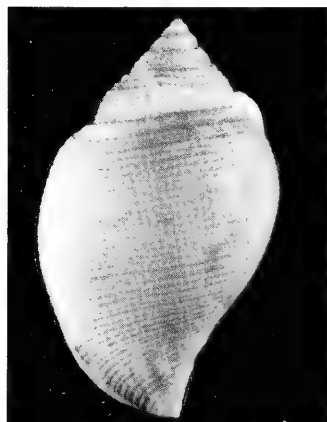
*Sconsia lindae* Petuch, 1987. 71mm. 45 fms., Gulf of Venezuela.



*Sconsia nephele* F.M. Baker, 1971. 48mm.



*Sconsia striata* (Lamarck, 1816). 59mm. 70 fms., Gulf of Campeche, Mexico.



*Sconsia striata* (Lamarck, 1816). 52mm. 50 fms., Key West, Florida.

\*It is now widely recognized that *F. howelli* and *atlantica* represent variations of a single species. For further information, consult Bayer & Voss.

\*P.O. Box 130243, Sunrise, FL 33313

With thanks to Al and Peggy of A & P Photo for their expert processing and continuing patience with this project.

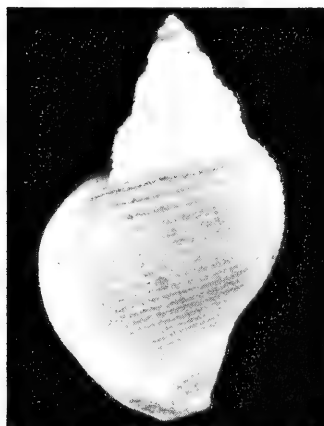
The intent of these centerfolds is not necessarily to distinguish among valid and invalid species, but to provide illustrations of taxa not popularly available, for the information of the collector.



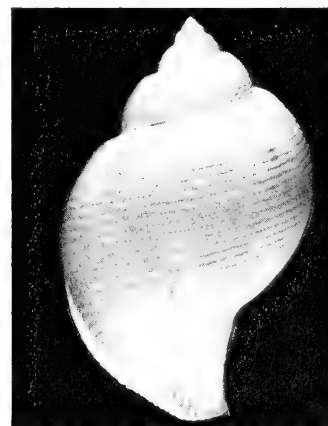
*Sconsia striata* (Lamarck, 1816). 45mm. Grand Bahama Island.



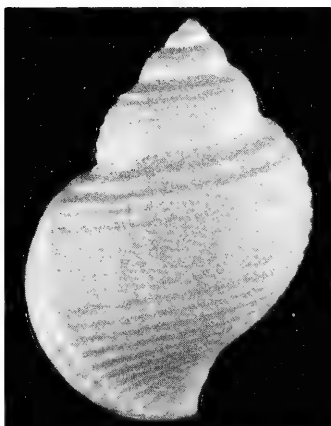
*Oocorys abyssorum* (Verrill & S. Smith, 1884). 35mm. Off South Carolina: depth undetermined.



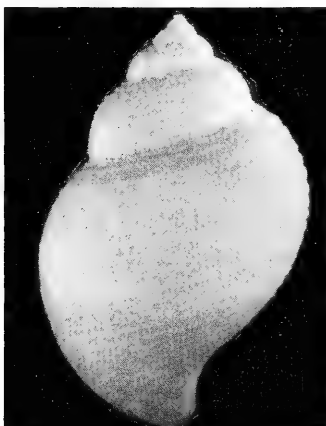
*Oocorys barbouri* Clench & Aguayo, 1939. 65mm. 130 fms., Key West, Florida.



*Oocorys bartschi* Rehder, 1943. 104mm. Off Alabama.



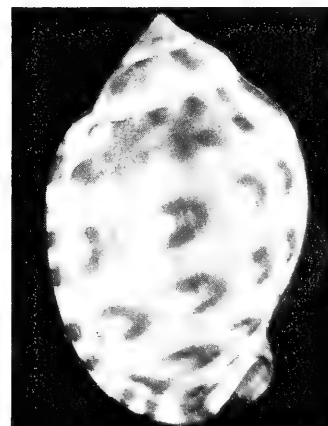
*Oocorys caribbaea* Clench & Aguayo, 1939. 41mm. Off northeast coast of Cuba.



*Oocorys sulcata* Fischer, 1883. 49mm. 450 fms., off Lesse Antilles.



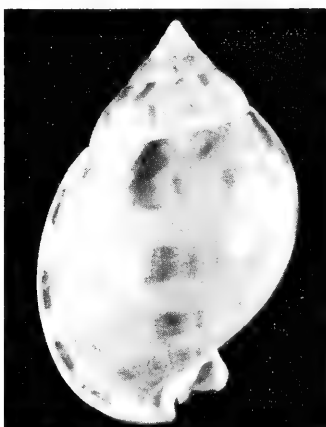
*Dalium solidum* Dall, 1889. 59mm. 470 fms., Trinidad.



*Phalium labiatum iheringi* Carcelles, 1953. 52mm. 40 fms., Southern Brazil.



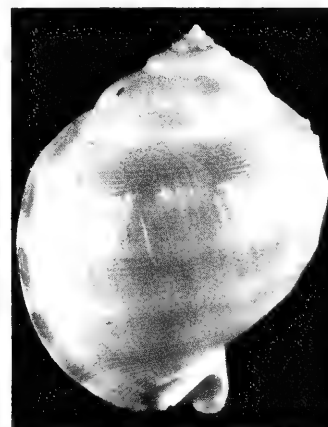
*Phalium granulatum* (Born, 1778). 81mm. 25 fms., Key West, Florida.



*Phalium granulatum* form *cicatricosum* Gmelin, 1791. 55mm. 3 fms., Plantation Key, Florida.



*Casmaria ponderosa atlantica* Clench, 1944. 42mm. 4 fms., Elbow Cay, Bahamas.

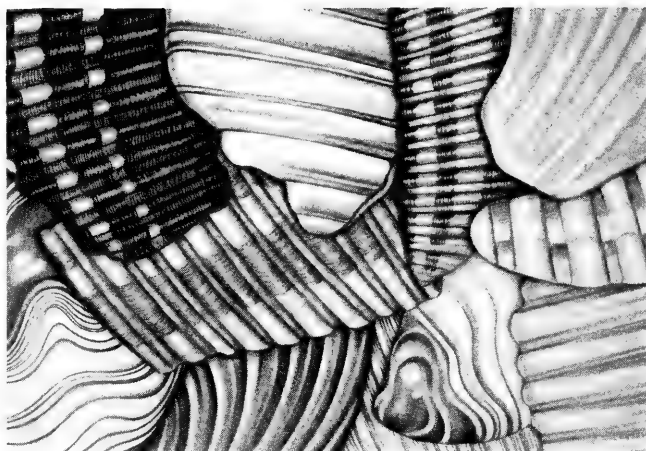


*Bathygalea coronadoi* Crosse, 1867. 86mm. 80 fms., Gulf of Venezuela.

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Two examples of Mathilde Duffy's fascination with shell shapes and textures.

## SPOTLIGHT ON...

### MATHILDE DUFFY

by Nancy Gilfillan

There are few of us in the shell world who have not seen examples of Mathilde Duffy's drawings of shells and seashells. But what were the influences that shaped her life and gave us such a talented artist?

Mathilde grew up in New Bern, North Carolina and spent twenty-two summers at Nags Head in a cottage owned by a family friend whose shell collection and sea-related artwork were a profound inspiration to her. She loved learning about the sea, collecting driftwood and shells, and visiting museums and science centers. She shelled all over the Outer Banks.

Limpets became Mathilde's good luck symbol. She loved their striking patterns and colors, and used them for school and scout displays. *Shells* by Tucker Abbott (1989) has part of her limpet collection on the front and back cover; two or three of them are from the early days, while the rest are from trading and collecting on travels.

One of Mathilde's brothers was in the Navy, travelling around the world for 18 years, and became her "Captain Cook," sending shell packages. Another brother was a Boy Scout leader and nature lover, and from him she learned about shore life, fossils, and natural science in general.

There were five generations of general practitioners in the Duffy family. Mathilde admired the detailed artwork in the medical magazines and books. It was when she illustrated her biology class notebook in high school that she knew what she wanted to do professionally, and she chose art over medicine. Her parents gave her their approval and support, even though they probably worried that she would starve as an artist, but as Mathilde says, "It has been and continues to be the ultimate challenge to forge through difficult times with just colored pencils, drawing paper, and a creative idea."

The first shell drawings Mathilde completed were the result of not having anything to show in the 1977 Sarasota Shell Show. Until then, Mathilde had been painting portraits and taking on various commercial ventures, plus teaching music, to pull through. She taught guitar to children and adults for three years and worked with school music programs before taking up art full time. Once people saw her exhibit however, things really began to happen.

Mathilde lives in Sarasota, Florida for about 15 years. She loved to scuba dive and found much subject matter for drawings. The intense reds, purples, oranges and pinks occurring together influenced her deeply, and her work reflects these colors, especially the reds and lavenders. Her drawings are drawn and shaded with pastel and colored pencils. The details are carefully built up, layer upon layer, until the last highlight is added. In the beginning, Mathilde used oils, but eventually she switched to colored pencils after discovering she was allergic to oils. She found that colored pencils allowed her more artistic freedom

than the medium of oil.

Mathilde works about nine to eleven hours a day on drawings, correspondence, finding new ideas, etc. Requests for her work now come from all over the world, including requests to exhibit in various museums and galleries. Her drawings are in collections in over thirty states and twenty countries. Many publications have featured her articles and cover illustrations (she has drawn four *American Conchologist* covers). Works have been commissioned by museum curators, noted worldwide collectors, and shell book authors. Larger pieces are in corporate collections. Large abstract pieces which magnify tiny areas of design on deeply patterned shells are becoming her favorite



drawings from the creative aspect; Mathilde says they have their own separate life from her ultra-realistic ones.

Mathilde lives in Watertown, Massachusetts, a suburb of Boston. She enjoys close-up photography, especially when she is showing tiny areas of unusual shells. Recently, she played guitar and sang around New England with "Just Plain Folk," an eight-member folk ensemble. She is currently working with a coffeehouse to raise money for Watertown's sister city in El Salvador.

Mathilde also collects unusual children's books from wherever she travels around the world, books pertaining to shells, sea life, and coastal exploration. She has some book ideas she hopes to see come to fruition, for she thinks "it is imperative that we help young people as much as we can to revere nature and understand its forces." She is involved in that process in many ways — through slide shows, children's books, lectures, and more.

As limpets became Mathilde's good luck symbol, so it has become our good luck to have Mathilde Duffy's enthusiasm, talents, and friendship in our world of shells.

## BOARDTALK...

From your **Vice-President Doris Underwood**: Each month I read or scan several dozen publications from a variety of organizations. The majority are, naturally, shell clubs or shell-related, but there are enough others for me to see how much we all have in common.

Most have the same concerns — membership, expenses, willingness to accept responsibility, etc. . Reminds me of our government.

As COA Vice President, one of my duties is to coordinate the COA Local Club Representatives Program. And to do that, I need your input — from individuals as well as clubs.

Not only am I interested in your problems, but I am interested in your suggestions and ideas. Have you had a successful program in your club? Found a solution to one of your problems? Please share with me not only the minuses but also the pluses. Hopefully, we can assist each other.

From your **Treasurer Walter Sage**: Guess what! It's time to pay your COA membership dues for 1992. As you will have noticed, this issue is accompanied by the gold dues renewal notice, and there are several mentions in these pages that it's time to renew. Your envelope was also stamped to that effect. Bobbie Houchin and I would appreciate your prompt attention to renewal, as we have spent a great deal of time in 1991 trying to reach all who have been late in renewing. No 1992 issues of *American Conchologist* will be mailed until we receive your renewal check, so it would benefit all of us if you take care of this responsibility at your earliest convenience. At this writing, we have approximately 120 memberships that have not been renewed for 1991 — we have done all possible to retain these members, and have made one last mailing to those we think most likely to want to continue COA membership. On a more positive note, we have received early renewals from more than 40 members, and have continued to receive new memberships in ever-increasing numbers. We are proud that there are so many who want to be a part of COA.

You will read elsewhere in this issue about the highly successful Long Island COA Convention. On behalf of the Long Island Shell Club and, in particular, myself and the other members of my "triumvirate," Helen Madow and Helen Paul, we want to thank everyone who contributed in any way to the success of our convention: those who gave slide talks, those who donated specimen shells and shell-related items to the convention, our dealers, and all who helped generate enthusiasm for the convention — we appreciate all your efforts and congratulate you for helping make this convention possible. Those who attended truly shared "The Good Life on Long Island"; and we trust you will share your pleasant experiences and encourage attendance at the 1992 Jacksonville, Florida and 1993 Panama City, Florida conventions. You will certainly want to attend.



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## OUR COA CLUBS — A CLOSER LOOK The Jacksonville Shell Club, Inc.

by Nancy Gilfillan

In 1959, an article appeared in the Florida Times-Union about Gertrude Moller's shelling experiences while living on Eleuthera Island in the Bahamas. Ten people called her, expressing their interest in shells and a meeting was set up the next week. They decided there was enough enthusiasm to make it worthwhile to meet once a month, and they have been doing so ever since. Today they meet at the Nelms Science Building #2, Jacksonville University, at 7:00 p.m., on the fourth Thursday of the month, except in November, when they meet at the Marine Science Center on the third Thursday (due to Thanksgiving) and December, when their meeting is a festive Christmas party.

The membership grew from that first meeting and in January, 1960 the club was launched into its first year of existence. In 1964, it became the Jacksonville Shell Club, Inc., by complying with Florida state law for incorporating a non-profit organization.

During that first year, the club decided to publish a newsletter called "Shell-O-Gram." It now comes out bi-monthly and carries *Hexaplex fulvescens* (Sowerby, 1834), the Giant Atlantic Murex, on its name plate. This large, massive shell is the club's emblem and is an excellent choice, as this is not only the largest murex occurring in the Jacksonville area, but is also the most handsome. The club's pins, tee-shirts and sweatshirts all carry this same logo.

Today the club boasts a membership of some 200. Most are interested in marine shells, but quite a few are extremely interested in land snails and may be found travelling anywhere there is a chance of finding another treasure. In addition, there are fossilers, a few divers and photographers, and those interested in arts and crafts.

It could be said that the club that plays together stays together, and it is not unusual to find them off to sites in Florida, the Bahamas, or Georgia for still another field trip.

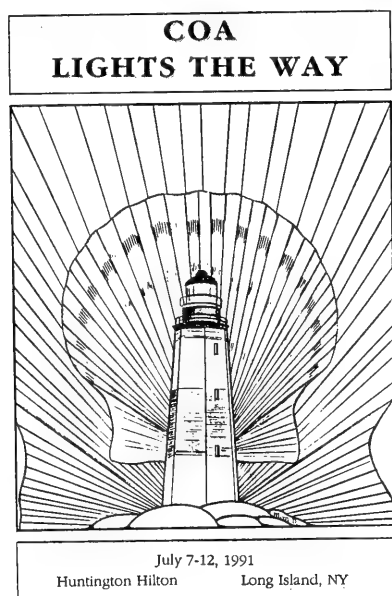
Members raise money not only from yard sales and auctions of donated shells, but also from their shell show. For quite a few years now, their shell show has been held at the Flagship Pavilion in Jacksonville Beach. Those who have exhibited there will be interested to learn that the June, 1991 shell show was the last of its kind; the Flagship Pavilion was due to meet the wreckers' ball and be demolished in July.

Over the past ten years, the club has given four scholarships to worthy recipients. In 1986, it gave a major donation then to Florida Museum of Natural History for the development of their new invertebrate paleontology program.

In June, 1985, the club made available to the public a **Checklist of Northeast Florida Shells** in the form of mimeographed sheets. A year ago, the club embarked on a lengthy and expensive project to expand their pamphlet into a paperback book of 64 pages which will cover almost 700 species, plus black-and-white and color plates. This book should be available sometime in 1992 and will cost around \$15.00; it should make a welcome addition to our libraries.

If you are interested in joining this club, dues of \$10.00 (single) and \$15.00 (family) may be sent to Ronnie League, 1620 Colonial Drive, Green Cove Springs, Florida 32043. And if you should be in the Jacksonville area and wish to attend a meeting, do contact them; they will be most happy to welcome you.

Now that this past summer's COA meeting is over, it is time to turn our thoughts forward to 1992. The Jacksonville Shell Club, Inc. is a vigorous, active and friendly club that knows how to make people feel at home; they will host a COA convention that will give us much to do and many warm memories to take home with us.



Convention program cover  
designed by Mathilde Duffy

## COA LIGHTS THE WAY — 1991 COA CONVENTION LONG ISLAND, NEW YORK

by Lynn Nathanson

The way was indeed lighted as 180 people convened on July 8th at the Huntington Hilton, Melville, Long Island, for the 1991 COA Convention. The eastern U.S. seaboard was, of course, well represented, but registrants came from all over the country, and from all over the world: Canada, Australia, Taiwan, Japan, Malaysia, Brazil, Israel, France and the Philippines!

For early arrivals, two programs were scheduled for Sunday evening: *Shelling in Hawaii* with Rich Kelly of the Long Island Shell Club and *A Walk Down the Beach* by another LISC'er, Jordan Star.

Formal registration began Monday Morning and continued throughout the day, with a 1:30 **Welcome** by COA President Hank Foglino and LISC President Jon Greenlaw, and an Introduction by Chairpersons Walter Sage, Helen Paul and Helen Madow of the LISC.

A well-received "bargain table" with all lots @.50 was set up Sunday evening and continued through Monday, and the Silent Auction began on Monday morning with two sessions that day and two the next.

Monday's programs included the *Origin of Long Island and History of the Long Island Shell Club* by Hank Foglino, *Shells of St. Lucia: Unusual and Not-So-Unusual Species* by Rich Kelly and *Land Shells: "A" to "Z"* by . . . you guessed it, our land-shell specialist and photographer extraordinaire, Richard Goldberg. These were followed by a program on brachiopods by Jack Odenwald entitled *A Mollusk It Ain't*.

**Door Prizes** were handed out before, during and after program sessions and the days events ended with a luscious **Get Acquainted/Welcome Party**. An automatic slide show ran during registration and at the Welcome Party depicting COA people, places and things from as far back as 1979 and continuing through last year's convention. Newsletter editors (or their representatives) from all attending shell clubs met later that evening for a most informative exchange of ideas and suggestions on how to best handle their "thankless" task! The group was led by Lynn Scheu, editor of *American Conchologist*, and many helpful hints were gleaned from this now-annual get-together.



Outgoing President Hank Foglino congratulates Incoming President Glen Deuel. Wouldn't you know it? Glen gave Hank a gift of a new shell. . .now Hank has TWO shells in his collection!

Tuesday brought **COA and Shell Club Sales**, late registration and then a multitude of absolutely marvelous programs. They began with Betty Jean Piech's *What's So Great About a Shelling Trip?* (oh! so very much!), followed by *Our Shelling Trip to Madagascar* by Dick Forbush (better not invite him to go boating with you!). Ben and Josie Wiener took us south with them in a most enjoyable *Shelling in Chile*, and Gene Everson brought us along on a thrilling dive trip to Malaysia with his program, *Shelling on Sipadan Island, Borneo*. Dr. Anita Freudenthal made us all swear off shellfish (at least for a few days) as she discussed *Mollusks and Your Health, Inside and Out*, and Chris



Myrna Golden chooses just one COA T-shirt, even though Arlyne Lieb and Val Conover urge her to take one of each color.



John Baker, Sol Weiss and Doris Underwood look over the goodies in the Grab Bag Bargain Table.

Takahashi showed us how living *Hawaiian Marine Shells in their Natural Habitat* blend into their surroundings. Jane Topping from Canada gave an informative program on the encroaching *Zebra Mussels: What You Should Know* (it seems an impossibility to stop them), and Mel Springer took us on a *Shelling Trip to the Indonesian Waters of Bali and Lombok*. Dr. Donald Bosch gave a before-and-after the Gulf War overview of *Seashells of the Gulf of Oman*, and the final program of the day was given by Jose and Marcus Coltro on an area they know quite well: *Shelling Along the Brazilian Coast*.

After another door prize break, the **Club Reps** met, and all went to dinner to work up their bidding strength as the infamous **COA Auction** was scheduled to begin at 7:30 p.m. The auction ran past midnight and auctioneers Sol Weiss, Bob Janowsky and Al Deynzer raised \$6,500 for the COA coffers. Of special note was an ammonite fossil which Bob Janowsky assured all he had collected live as a youth!

Wednesday dawned magnificently — cloudless skies and temperatures in the 80's — a perfect day for a **Field Trip**. The buses departed the hotel at 8:30 a.m. heading for the first destination, **Pindar Vineyards** in Southold, Long Island. Members were treated to a tour of the facilities including the vineyards, weighing area, fermentation vats and the barrel room. The final portion of the tour was a sampling of a few of Pindar's new wines. The second and final destination was **Orient Beach State Park**. Box lunches were provided to all the attendees and the buses arrived as planned, during a receding tide. Many shells had washed up on the beach, especially the ever-present *Crepidula fornicata*. Many members strolled the beach to an area of



Phil Dietz, Harry Lee, Bob and Dottie Janowsky and Sue Hobbs at the Welcome Party. What WAS in that drink, anyway, Harry?



**MEET THE EDITORS!** Front row: Tucker Abbott, Glen Deuel, Dot Schneider. Second row: Lynn Scheu, Betty Lipe, Doris Underwood, Walter Sage. Third row: Mathilde Duffy, Lynn Nathanson, Linda Koestel. Back row: Charles Owen, June Huie, Mary Owen.



Happy faces are everywhere at a COA Convention: Irene Longley, Doris Underwood, Walter Sage, Vivienne Smith, Jon Greenlaw and John Baker.



Two of our illustrious speakers: Dr. Donald Bosch and Dr. Gary Rosenberg.





**The Unsung Heroes of the Auction:** Doris Underwood, Walter Sage, Helen Paul, Deena Martin (Jane Forbush, we know you're hiding back there!) and Dottie Janowsky.



Al Deynzer and Tucker Abbott chat between sessions while Dr. Ruth Turner of Harvard University looks on.

exposed rock and were able to find *Chaetopleura apiculata* and a few *Notoacmaea testudinalis* attached to the rocks. Buses left for the trip back to the Hilton at 3:30.

After a rest and dinner, Wednesday evening gave us two programs: Dave Relyea discussed Long Island mariculture with his *Oyster Farming in Oyster Bay, L.I.*, and a taped slide presentation by Doug von Kriegelstein took us diving, dredging, tangle netting and shallow water *Shell Collecting off the Cocos Islands, Costa Rica*.

Something new for COA the **Concurrent Session**, took place

#### CONTRIBUTORS TO THE COA 1991 AUCTION

R. Tucker Abbott  
Family of the late  
Helene Avellanet  
John A. Baker  
Family of the late  
Alice Denison Barlow  
Yvonne Bequet  
Mary & Al Bridell  
Albert F. Chadwick  
Edie & Chip Chippeaux  
Phillip W. Clover  
Marcus and Jose Coltro  
Bunnie & George Cook  
Bruce W. Crystal  
Donald Dan  
Marion & Glen Deuel  
Bev & Al Deynzer  
Phyllis J. Diegel  
Sylvia & Jake Dominey  
Mathilde Duffy  
Edward A. Dunlap, M.D.  
Pam & Gene Everson  
Mrs. Peter Fleischner  
Jane & Dick Forbush  
Richard L. Goldberg  
Myrna & Jack Golden  
Matthew H. Grote  
Hawaiian Malacological Society  
Vi Hertweck  
Leonard C. Hill  
Sue Hobbs & Phil Dietz  
Barbara Houchin  
Mary H. Hughes  
Dottie & Bob Janowsky  
Archie Jones  
Richard J. Kelly  
Linda A. Koestel  
Richard M. Kurz

Georgette LaForet  
Betty & Bob Lipe  
B.J. Larson & Marty Gill  
Charlotte M. Lloyd  
Long Island Shell Club  
N. Irene Longley  
Helen & Stan Madow  
Ross Mahew  
Lynn Nathanson  
LaVern & Al Niere  
Jack Odenwald  
Janet & Bill Paddison  
Helen Paul  
Dov Peled  
Richard E. Petit  
Mique & Pinky Pinkerton  
Jeanne & Don Pisor  
Doris H. Platt  
Walter Robertson, Jr.  
Irving Rubin  
Lynn Rubinowitz  
Walter E. Sage III  
Gloria M. Scarboro  
Mary & Ed Schelling  
Lynn Scheu  
Dorothy & Philip Schneider  
Vivienne B. Smith  
Jordan Star  
Susan B. Stephens  
Linda & Kevan Sunderland  
Marguerite T. Thomas  
Doris K. Underwood  
Kay C. Vaught  
Dr. Emily H. Vokes  
Mary & Sol Weiss  
George W. Weitlauf  
Josy & Ben Wiener  
Donald J. Young



**Members of the COA Bivalve Symposium:** Gene Everson, Harry Lee, Sue Hobbs, Kurt Auffenberg and Peggy Williams.

Thursday morning. In one hall, Dr. Harry Lee, Gene Everson, Sue Hobbs, Peggy Williams, and Kurt Auffenberg of the Florida State Museum discussed *Bivalve Mollusks and the Shell Collector*, accompanied by each speaker's slides. At the same time in an adjoining room,



**The COA Club Representatives Meeting** — Can you find: John Baker, Yvonne Bequet, Julius Bienstock, Al Bridell, Mary Bridell, Horatio Buck, Lucy Clampit, Glen Deuel, Mathilde Duffy, Dick Forbush, Bobbie Houchin, June Huie, Linda Koestel, Betty Lawson, Harry Lee, Mary Owen, Betty Jean Piech, Jean Roe, Ed Schelling, Mary Schelling, Lynn Scheu, Vivienne Smith, Jordan Star, Doris Underwood, Ben Wiener, Josy Wiener? We hope we'll see your face in this picture next year in Jacksonville!



Arlyne Lieb holds one of the lovely centerpieces she made for the COA Banquet, while New COA Trustee Herb Young holds other New COA Trustee Linda Koestel.



Vi and Jon Greenlaw, Marion and Glen Deuel and Mary Ruth Foglino at the COA Banquet on Long Island.

Frank and Ruth Abramson presented *Stamps, Coins and Collectibles*. These programs were followed by a second set: Charlotte Lloyd, with Bob Lipe, Peggy Williams and Harry Lee, gave a wonderful presenta-

### A NOTE OF THANKS TO SOME VERY SPECIAL PEOPLE:

Our COA Conventions are, for many of us, the highlight of our year. They provide us with annual opportunities to see old friends, make new ones, learn about shells, talk shells, buy shells — such important and satisfying parts of this all-consuming hobby of ours! But without the dedicated, tireless and expert work and talent of some selfless people, this annual party of ours wouldn't come off at all.

So, to the many generous donors to the auction and raffles and the hotel staff at the Huntington Hilton, we'd like to say a warm and very satisfied "THANK YOU!" You all made it a very special time!

To all the members of the **Long Island Shell Club**, our COA 1991 Convention hosts who worked so hard and gave so much that we could have and enjoy this very memorable week, we say "THANK YOU!"

To **Sue Stephens** for another one of her marvelous T-shirt designs, we say "THANK YOU!"

To **Mathilde Duffy** for her very inspired and pleasing design for the program cover and convention symbol, we say "THANK YOU!"

To all the COA officials and workers who give of their time all year and gave up some of their "fun time" at the Convention to make it all work, we say "THANK YOU!"

To **Hank Foglino**, COA President 1990-91, who, among so many other generous gestures, made us all laugh, we say "THANK YOU!"

To **Lynn Nathanson** for her patience, hard work and talent in producing the Convention program, for her long and exhausting hours as Convention photographer, and her excellent work in producing the Convention account presented here, as well as all the countless other things she and others did to make our 1991 Convention run smoothly, we say, "THANK YOU!"

And finally to **Helen Madow, Helen Paul and Walter Sage**, our faithful, selfless and wise Convention Co-Chairmen, for all their patience and kindness and thoughtfulness during the Convention, all the worry and anxiety and sleepless nights they suffered over the past two years, all the talent, excellent planning and superb execution of those plans that went into the making of COA Convention 1991 — Long Island, we say "THANK YOU!" You are all what makes COA great!

#### CONCHOLOGISTS OF AMERICA

##### Officers and Committee Chairpersons for 1991-1992

**President:** Glen Deuel

**Vice-President:** Doris Underwood

**Secretary:** Vivienne Smith

**Treasurer:** Walter Sage

**Trustees:** Hank Foglino (Current Past President)  
Herb Young  
Linda Koestel

**Finance Committee:** Al Chadwick

**Trophy Committee:** Don Dan

**Grant Award Committee:** Dr. R. Tucker Abbott

**Publications Committee:** Richard Goldberg

**Parliamentarian:** Don Young

**Publications Editor:** Lynn Scheu

**Publicity Committee:** Jack Odenwald

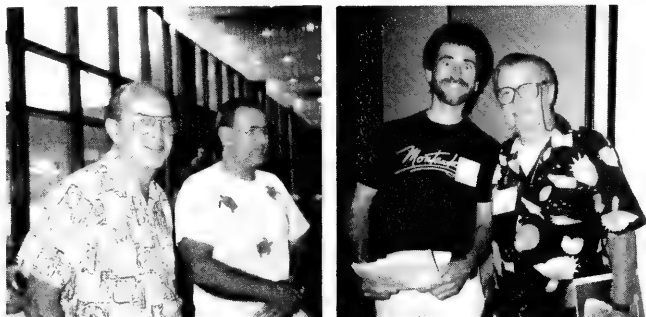
**Historian:** Lucy Champit

**Nominating Committee:** Dick Forbush  
Al Chadwick  
Charles Roe

tion of *Caribbean Shells and Shelling*, covering the live animals in their natural habitat, collecting techniques (never live-collect without a sock!), photography tips, aquarium set-ups, etc., while Dr. Gary Rosenberg, in the adjoining hall, presented a very informative and beautiful slide program, *Introducing the Ovulidae* — a survey of the beauty and diversity of the shells, living animals and habitats of this poorly understood group. A question and answer period followed. The Concurrent Sessions were well received, and presented only one problem to some of us: how to attend both at the same time? A difficult choice at best.

The split meeting rooms were joined into one again as Dr. R. Tucker Abbott gave us *The History of Popular Shell Literature* and, after a lunch break, Dr. Harry Lee discussed selected elements of Jacksonville Shell Club's upcoming publication on *N.E. Florida Marine Mollusks*. Charlotte Lloyd ended the COA offering of programs by inviting us all (and who would say no!?) to Jacksonville next July 26-31 where COA will convene at the Sawgrass Marriott Hotel. The Jacksonville Shell Club has planned many wonderful experiences for us in their upcoming *Year of Discovery*.

After a break, the **General Business Meeting and Raffle Drawings** were held. The 1991-1992 Slate of Officers reads as follows:



A quiet moment for Al Deynzer and Bob Lipe...and a not so quiet one for Rich Goldberg! What coveted land shell do you suppose Tucker has promised him?

President	Glen Deuel
Vice President	Doris Underwood
Secretary	Vivienne Smith
Treasurer	Walter Sage
Trustees	Hank Foglino (Past President)
	Linda Koestel
	Herb Young

Next year's Nominating Committee will consist of Herb Young, Al Chadwick and Charles Roe.

COA has about 1200 members. Eight grants totalling \$5,010 were awarded this past year, and the total of Auction, Silent Auction and Bargain Table topped \$8,000.

The meeting ended and people began to line up outside the Bourse room, wallets in hand, awaiting the 4:00 p.m. bell. "And they're off. . ." Twenty-five dealers presented a spectacular array of shelly



Auction scenes 1991 — Al Deynzer and Bob Janowsky make work for their eager assistant.

wares. The Dealers' Bourse continued on Friday until 1:00 p.m., and judging by the dealers' tired but smiling faces, it was a good bourse for all.

At 1:30 p.m. on Friday, a group set off to Theodore Roosevelt's Home at **Sagamore Hill**, where a ranger gave a short lecture followed by a self-guided tour. Later, a "porch chat" (a 45-minute talk on Teddy Roosevelt's life) was held. Others went to see the museum and view a film on this U.S. ex-president.

Back to the Hilton to change, rest a little, and then on to the delicious **Banquet** and **Dr. Ruth Turner's** slide and film presentation on sea life as seen from the deep sea submersible ALVIN on the thermal vents off the Galapagos Islands.

Some hugs and kisses. . .and fond friends were bade farewell — until next year in Jacksonville!

## PUBLICATION ANNOUNCEMENT

We are pleased to announce the appearance of the new "Seashell Treasures Books" catalogue. This catalogue (first part only) offers you about 653 titles of antiquarian and new books and 69 series of periodicals on malacology. Later this year the second part of this catalogue will be sent to those interested. For free catalogue, please contact Dr. W. Backhuys, Seashell Treasures Books, Warmonderweg 80, 2341 KZ Oegstgeest, The Netherlands, tel. 71-170208; fax: 71-171856. — W. S.



## INTERNATIONAL SHELL SHOW IN PORTUGAL

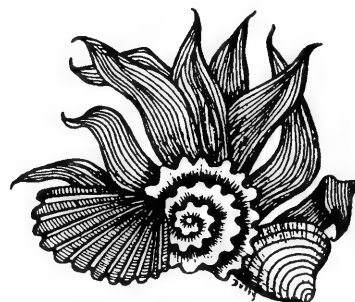
For information about the First Lisbon International Shell Show, to be held November 23-24, 1991, write to Sociedade Portuguesa de Malacologia (Apartado 3293, Lisboa Codex, Portugal) without delay. The last day for registration is October 25.

## EXCHANGES WANTED:

I have been collecting North Sea material for over 10 years now, and recently I decided to elaborate on my collection. Therefore, I would be very interested in receiving more information about your society. . . . I am also interested in finding people to exchange shells with: North Sea shells against American Shells. My special interest goes to the following families: Pectinidae, Marginellidae, Cypraeidae, Olividae.

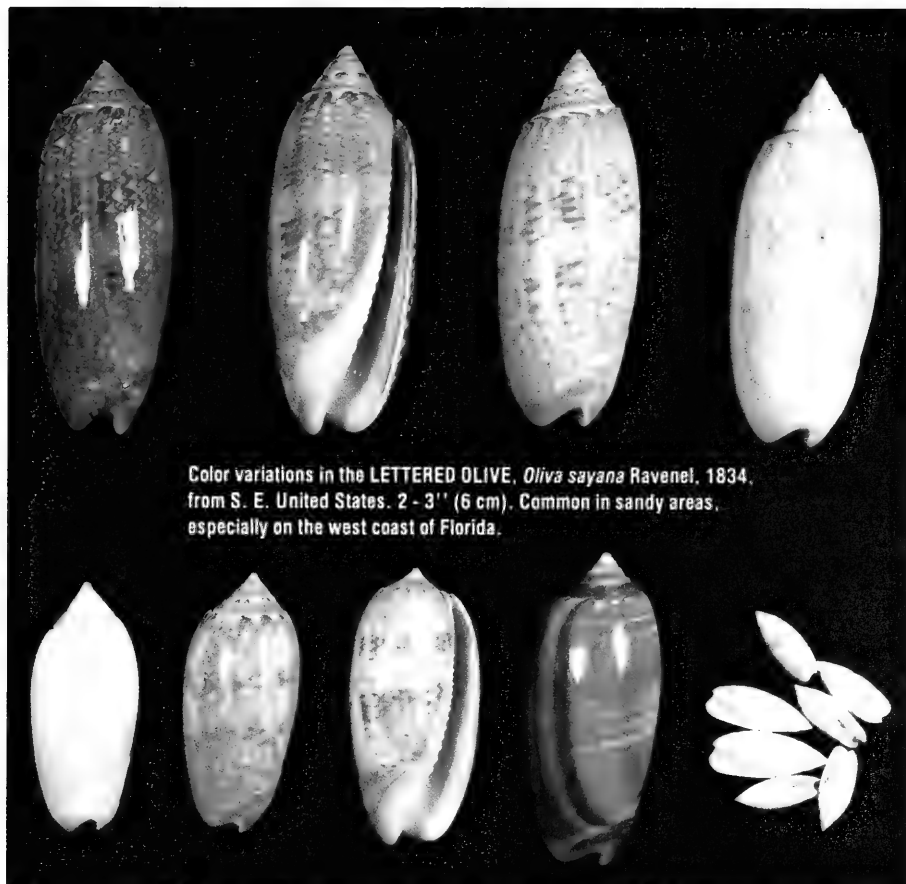
Hoping to receive news soon.

Rika Goethaels  
Lobelialaan 5  
8400 Oostende  
Belgium



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AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS



Color variations in the LETTERED OLIVE, *Oliva sayana* Ravenel, 1834, from S. E. United States. 2 - 3" (6 cm). Common in sandy areas, especially on the west coast of Florida.

Although there are relatively few olive species in the Caribbean Sea and southeast United States, they show a wide range of color variations, from almost black to golden yellow. In the upper row, third from the left, is a "harelip" specimen. In the lower row are Netted Olives, *Oliva reticularis* Lamarck, 1810, and half-inch West Indian Dwarf Olives, *Olivella nivea* (Gmelin, 1791). (photos by R. T. Abbott)

## THOSE PUZZLING OLIVE SHELLS

by R. Tucker Abbott

Do olive shells "talk"? Dr. Ben Tursch of Belgium recently investigated this preposterous question in his laboratory aquariums. By "talk" he meant "how do *Oliva* communicate," for he and many malacologists before him have always wondered why and how certain species, like some olives, congregate together and assemble in localized colonies.

The answers were inconclusive, except to say that the local movements of olives are affected by the nature of the sandy or muddy substrate, by the direction and strength of the water currents, and perhaps more importantly by the nearby presence of food.

If ever a marine snail was a possessive glutton, it's the olive. It is unique in having a special, open pouch for packing its lunch. An olive locates a juicy dead shrimp or a small, live clam by sensors in its fore-foot. Grabbing the prey in its foot, the snail passes it back to an expandable pouch on the underside of the rear of its foot. Sometimes this pouch is swollen with food to a size equal to the rest of the foot. The pouch-filled olive then digs down into the sand, and curls up in happy contentment as it gently nibbles away at this captured lunch.

Olives have another unique feature. They are the only family of marine snails that occasionally exhibits a "harelip" malformation specimen of olive that has a single, raised, spiral ridge running around the last whorl. A "harelip" break in the mantle edge causes the formation of this strange circle in one out of several thousand speci-

mens. Curiously, this rare abnormality occurs in half the known species of *Oliva*. It is a family trait.

Another unique trait is common to olives. Adults do not have an operculum. No one, to my knowledge, has explained the defense mechanism they must use to ward off poisonous marine worms, shell-seeking hermit crabs and marauding fish. Olives may possess a repugnant taste or, like some cowries and cancellarias, produce excessive amounts of sticky slime. Since early exploration days naturalists have observed olives swimming by flapping the foot and mantle edge in order to escape starfish and other carnivorous gastropods. It is interesting to note that most of their cousins, the *Olivella*, do possess an operculum.

Female olives release their small, crystal-clear, balloon-like egg capsules freely on to the sandy bottom. Each small, 2mm-long capsule may contain from 20 to 50 eggs, which hatch as tiny, free-swimming veligers in about a week. The helpless cilia-covered veligers, resembling miniature helicopters, emerge one every minute, and in most cases fall prey to small hungry fish.

We seem to know more about the natural history of the olives than we do about their speciation. Malacologists have been struggling with their identification and classification ever since Linnaeus proposed his infamous *Oliva ispidula*. So confusing was its description that today we refer to that common Indo-Pacific species as *O. ispada* (Roding, 1798). Early naturalists published many beautiful color plates of innumerable species — Charles

Chenu of Paris being one example. One of his

plates, published in 1843, adorns the front cover of this issue of the *American Conchologist*. Duclos, Marrat, C. W. Johnson, Porreca and Zeigler, Petuch and Ben Tursch have all entered the fray. All told, about 800 names have been proposed in the family, including about 50 generic and subgeneric names. One could conservatively estimate that there were about 250 living species.

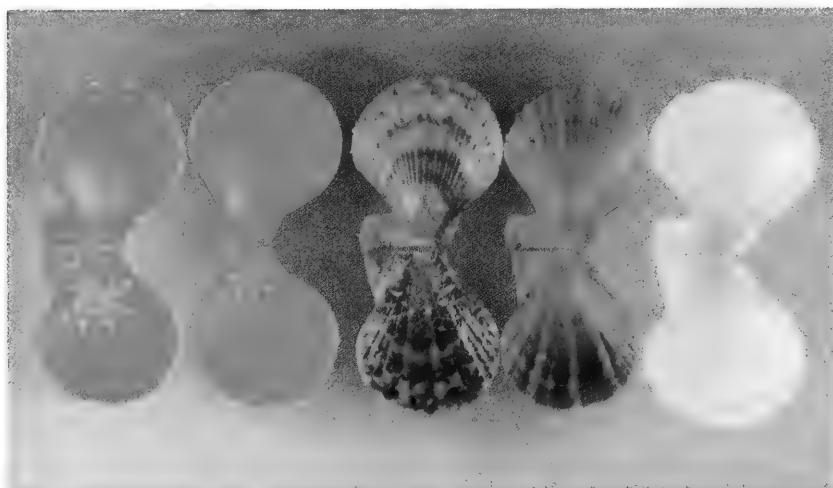
There seems to be light at the other end of the olive's siphon, however. Ben Tursch and his colleagues have been undertaking a very thorough and scientific analysis of all the reliable characters — radula, reproductive system, morphometric studies of nuclear whorls — and with a reasonable attitude toward variation within a species.

When you purchase an *Oliva* from a dealer these days, you are spinning the wheel of identification chance. When you see that a new species has been recently described you must judge it by the biological evidence presented, and not by the morphological characters and colors. This large and fascinating family, with its endless array of colors and patterns, is surely a continuing challenge to any shell collector. What you name it is not as important as the delights of tracking down another of nature's gems for your own collection.

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## NOTES FROM THE PAST

by Bob Purtymun

## Dive Log Entry:

Nov. 5, 1982 — Dive #1 SCUBA 15-45' 95 minutes  
Yacht Basin, Apra Harbor, Guam, Marianas

How about these *Chlamys squamosa* (Gmelin, 1791) for color? Only those two on the left, the red and the orange, were collected on this dive. We observed many, many others while diving in the murky waters of Apra Harbor during October and November of 1982. They were attached by their byssus to the bottom, composed of coral blocks and slabs. All the shells were about the same size. Conditions must have been just right for the successful hatch of these colorful bivalves.

1200 Brickyard Way #407, Point Richmond, CA 94801.

## A REVIVAL OF "THE COWRY"?

The Cowry magazine, edited by Lt. Col. R. J. Griffiths, published vol. 1 (nos. 1-8) between December 1960 and August 1965, and ended with no. 1 of vol. 2 issued sometime in 1967. It is my hope that the magazine can be revived and published as a quarterly journal dealing with all aspects of the Cypraeaacea, extant as well as extinct. It is envisioned as a refereed technical periodical whose wide distribution and competent editorial board would warrant publication of original descriptions. Because of the prevalence of those who study cowries and related families as an avocation, a certain percentage of contributions would be solicited in order to maintain variety and to introduce topics that would benefit students of all levels. The content thus would be a combination of original research and broader, topical-review-type articles occasionally supplemented by book reviews. The journal could probably afford to print halftones only in black-and white, at least until it would become fiscally established, but contributors would be asked to submit color prints whenever possible, to be used for a future full-color catalog (submittal would constitute permission and proper crediting would be of course guaranteed).

If there turns out to be enough interest, I would be willing to take the risk of calling for papers and producing the first issue. Please answer the following questions and send them to me with any comments that you deem appropriate. Print your name and address if you wish to receive future announcements.

1. Are you in favor of reviving **The Cowry** and would you be interested in subscribing? If yes, please answer questions 2-4.
2. How much would you be willing to pay for 4 issues a year totalling (a) ca. 120 pages in 8-1/2 X 11" format or (b) ca. 240 pages in 5-1/2 X 8-1/2" format used by Griffiths? \$10, \$15, \$20, \$25, \$30. Circle format and amount.
3. Would you be in favor of a trading/buying/selling section in each issue (no display ads, charges based on number of lines)?
4. Would you contribute and/or would you consider reviewing manuscripts?

Send your response to Dr. Jiri Zidek, Chief Editor/Geologist  
New Mexico Bureau of Mines & Min. Res.  
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## LETTERS

Just a note to congratulate you... and John Timmerman for the great cover on the June Issue. It sat on a table in my den for several days, and I kept thinking it was curious, but only tonight did I realize that Timmerman has drawn, *a la* Escher, a physically impossible arrangement. Great!! Keep up the good work!

Richard E. Petit

**FILL IN THE BLANKS FOR #1 THROUGH #8. THEN  
TRANSFER THE LETTERS IN THE BOXES TO THE  
BLANKS AT THE BOTTOM OF THE PAGE TO RE-  
VEAL THE MESSAGE.**

1. A shiny rounded shell used for money: ☐ ☐ \_ \_ \_ \_
  2. Tusk shell with narrowed aperture: \_ ☐ ☐ ☐ \_ \_ \_ \_
  3. A watering pot: \_ \_ ☐ \_ \_ \_ \_ ☐
  4. An internal cephalopod skeleton: \_ ☐ \_ \_ \_ \_ ☐
  5. A *Cypraea* ally: \_ ☐ \_ \_ \_ \_ ☐
  6. Med. Murex genus: ☐ \_ ☐ \_ \_ \_ \_
  7. Staircase genus: ☐ \_ \_ ☐ ☐ \_ \_ \_ \_
  8. Philippine shell dealer Fernando ☐ ☐ ☐ \_ \_ \_ \_
- Secret message: \_ \_ \_ \_ \_

\_\_\_\_\_ !

## IT'S COA DUES RENEWAL TIME

September is renewal month for COA. Pay your dues now  
before you forget! Use the enclosed gold sheet.



# 1991 SUMMER AND FALL SHELL SHOWS AND OTHER MEETINGS

by Donald Dan, COA Trophy Chairman

- Sept. 1 Jim & Linda Brunner, P.O. Box 8188  
Southport, FL 32409 ..... (904) 265-5557
- Sept. 13-15 **Midwest Regional Shell Show**, Merrillville, IN  
Marion Magee, 2117 Fisher Ave.  
Speedway, IN 46224 ..... (317) 247-8079
- Sept. 21-22 **International Shells & Fossils Bourse**  
Ottmarsheim, France  
Michel Rioual, 2 Rue des Vilgils  
68490 Ottmarsheim, France ..... (089) 26-16-43
- Oct. 12-13 **Annual German Shell Fair**, Stuttgart, Germany  
Hans Gorg Niederhoser  
Staatl. Museum Fur Natur Kunde  
Rosenstein 1, 7000 Stuttgart, Germany ..... (0711) 893-6268
- Oct. 18-20 **North Carolina Shell Show**, Wilmington, NC  
Dean Weber, 510 Baytree Rd.  
Wilmington, NC 28403 ..... (919) 799-3125
- Oct. 19-  
Nov. 3 **Oregon Shell Show**, Portland, OR  
Vivian Holden, 11945 SW Lynnfield Ln.  
Portland, OR 97225 ..... (503) 644-2020
- Oct. 26 **British Shell Collectors' Club Shell Show**  
London, England  
Kevin Brown, 12 Grainger Rd.  
Isleworth, Middlesex TW7 6PQ, England ..... (081) 568-8333
- Nov. 9-10 **Philadelphia Shell Show**, Philadelphia, PA  
Al Schilling, 419 Linden Ave. .... (215) 886-5807  
Glenside, PA 19038 ..... (or 1-800-274-8530, toll free)

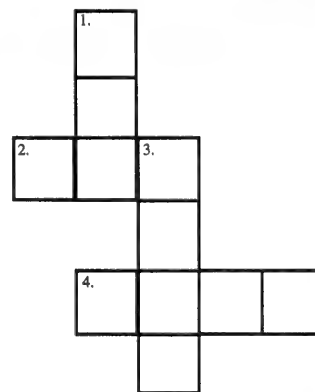
SOLVE THIS LITTLE CROSSWORD TO FIND A  
MESSAGE FOR YOU:

ACROSS:

2. What we have to do  
when the shell dealer  
sends his bill.
4. These keep  
Walter Sage happy.

DOWN:

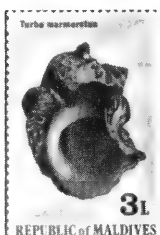
1. The greatest shell  
club on earth.
3. Opposite of my, as in  
"my trophy" or  
"My world record cone."



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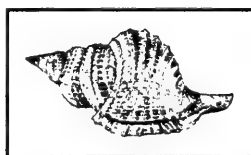
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# AMERICAN CONCHOLOGIST

QUARTERLY BULLETIN OF THE CONCHOLOGISTS OF AMERICA, INC.

VOL. 19, NO. 4

DECEMBER 1991



*In 1972, a group of shell collectors saw the need for a national organization devoted to the interests of shell collectors — the beauty of shells, their scientific aspects and the collecting and preservation of mollusks. Our membership includes novices as well as advanced collectors, scientists and shell dealers from around the country and the world.*

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#### MEMBERSHIP

Memberships are for the calendar year, January through December. Late memberships shall be retroactive to January. **DUES:** (per year) INDIVIDUAL (USA, Canada, Mexico) \$12.50; FAMILY & CLUB/ORGANIZATION (USA, Canada, Mexico) \$15.00; CARIBBEAN, CENTRAL & SOUTH AMERICA (via Airmail) \$20.00; COUNTRIES OUTSIDE THE AMERICAS (Via Airmail) \$25.00. Make checks payable to CONCHOLOGISTS OF AMERICA. Please pay in US dollars with a check that has Transit Enrouting and Account Numbers printed at the bottom of check, or a money order and send to Bobbie Houchin. **RENEWALS** are sent to the TREASURER, Walter Sage. **BACK ISSUES** are available from Mrs. Houchin as follows: prior to 1985- \$1.00 each; 1985 to current - \$2.50 each.

**COVER:** How many marginellas will fit on a penny? Quite a number of the tiny ones. Bob Lipe's photo of marginella species from Sao Tome Island and Angola, West Africa keeps us coming back for another look. Such a lot of lovely shells in such a very small space!

American Conchologist is mailed via **BULK MAIL**. Bulk mail is not forwardable, and if undeliverable, will be thrown away. If you move and do not notify us of your change of address, your magazine will never reach you, and we will never know that it didn't. Please send your change of address to membership chairman Bobbie Houchin.

## PRESIDENT'S MESSAGE

When I was the COA Vice-President someone said to me, "I know you must be busy, but just what do you do?" I would like to tell you what each officer and chairperson does. This will have to be done in parts, because it will take a page to tell you what Walter Sage, our Treasurer, does and another page to relate our Editor, Lynn Scheu's activities.

In a recent letter from Bobbie Houchin, our Membership Chairperson, she mentioned some of the COA duties occupying her time. She said, "I now have 178 new members and changes of address. . ." Bobbie has to get copies made of membership applications for the files, as well as membership rosters and out-of-print back issues of the **American Conchologist**, which she sends to new members along with membership cards and other specific materials as requested. Bobbie does the time-consuming job of stapling, addressing, stamping, sealing and mailing. Extra mailings are required when she receives applications with outdated membership rates. She has been making copies of the **COA Bulletins**, issues 1-17, and selling them at COA conventions. Bobbie gets mail from various sources requesting information, which she supplies or passes on to another officer or chairperson to answer. Extensive filing is required, as is correspondence with the President, Treasurer, Editor, Past President and others.

Also of interest from Bobbie is the COA roster, a list of paid-up shell club members. Including the AMU and three museums, we have 61 club members, a substantial increase.

We have heard requests to include more of the COA membership in accomplishing COA goals. One good example of such volunteerism is John Baker. John, also active in the Astronaut Trail Shell Club, has been promoting COA by offering a prize within his club to the person getting the most new COA members. John also donated a tape recorder to COA, now in use by Secretary Vivienne Smith. John is currently giving of his time and talents to help revise the COA constitution and Bylaws as a member of a newly appointed special committee (along with Vice-President Doris Underwood as Chairperson, and Linda Koestel, COA Trustee). John (then Nominating Committee Chairman) traveled to Louisville last January to the first Mid-Year Board Meeting to do preliminary work on this project.

Another volunteer from the COA membership, Past Secretary Barbary Elliott has offered her services, as required or requested, to your President. Already she has given some assistance to Vivienne Smith. Others have offered to assist and will be put to work just as soon as your President is smart enough to figure out the best way to employ their talents.

It may be of interest to some shell clubs that a project assigned to Publicity Chairperson Jack Odenwald is to photograph and tape parts of next year's COA Convention at Jacksonville. The idea is to provide an interesting program for shell clubs and possibly other groups, and to advertise the COA at the same time.

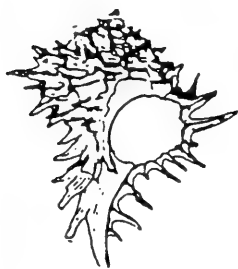
The Cairns Shell Club, Queensland, Australia, sent a copy of their long newsletter to me recently. One of their articles — concerning restrictions on collecting and removing seashells from Australia — is not new, but I would urge a revision to their laws to allow conchologists and malacologists the privilege of collecting and bringing home a few specimens of several non-endangered species. We in the United States may experience a similar situation when the Florida Keys and maybe a part of the mainland are declared a national reserve. If this idea spreads too far, we shell collectors may become a past tense — "Conched out."

Let me hear from you,

*Glen Deuel*

Glen Deuel

## COA '92 — YEAR OF DISCOVERY



Come and discover the beauty of northeast Florida while celebrating the Columbus Quincentennial at the COA Convention, hosted by the Jacksonville Shell Club. The beautiful Mariott Resort at Sawgrass, Ponte Vedra Beach will be convention headquarters July 26 through August 1. The many resort amenities include the beach and cabana club, planned children's activities, horseback riding, 10 clay tennis courts, 4 swimming pools, and 9

holes of championship golf. Probably the best news we can give you is the room rates. Single and double rooms run about \$75.00 per day, with \$5.00 for the extra third or fourth person in your room. Sawgrass Village, located next door, has more than 25 retail shops, including a grocery store and several eateries in different price ranges.

Something a little different that the Jacksonville Shell Club has planned is to provide a Hospitality Area — a place where you can sit with friends and talk about shells while enjoying a cup of coffee, a coke, and home-baked goodies. All complimentary, of course! Nearby, the conference rooms are very large and the Master Ballroom where we will be holding the programs has 8,000 square feet of space. The program chairman has already scheduled several excellent programs and symposia, but anyone wishing to present a program should contact Dr. Harry Lee at the address below. The following three symposium topics being planned are: "How to Collect Land, Freshwater, and Marine Mollusks with Curation from A to Z," "Molluscan Paleontology," and "Non-marine Mollusks of Southeast America."

The Exhibit Hall which will be used for the bourse has 17,000 square feet, independent of the program or banquet space. This will allow the dealers to have plenty of time to set up and take down, 24 hours if needed, so they should not have to miss any of the planned activities. Dealers who have participated in prior

conventions will receive information after the first of the year. Those who have not participated in the past can contact the bourse chairman Frank Abramson at the address below. With so much extra space we have decided to have a Mini Shell Show. Exhibits will be limited to ten feet of display area, and cases will be provided for anyone who requests them. Categories will be: Rare, Single Specimen, Self-Collected, One Area, and Beautiful. Some very special plaques will be awarded to the winners during the convention. The auction will be held Wednesday evening, as usual, and it's not too early to send donations for the bid auction, silent auctions and door prizes. COA depends on your generosity for its continued support of educational projects.

The Mariott Resort is located approximately 15 miles south of Jacksonville and north of historic St. Augustine on A1A. Field trips will take us in all four directions of the compass. We'll travel south to visit the ancient city and tour different sites by tram. You'll have time to lunch and walk the restored area on your own. The adventurous certified scuba divers may travel east and dive both a natural reef and an artificial reef offshore from Mayport. Saturday following the convention some will go north to Cumberland Island in the Golden Isles of South Georgia, about an hour away. Or you may choose to go west to visit the Florida Museum of Natural History in Gainesville, housing the 5th largest collection of catalogued mollusks in the United States. For the beachcombers, maps of local shelling information will be in your registration packets.

The banquet cuisine promises to be extraordinary. The Mariott is committed to excellence and its special touches should make the COA convention banquet unforgettable. You should make every effort to attend the banquet to receive the unique gift we have planned for you.

Make your vacation plans to include this week for COA '92 and visit old friends and discover new shelling acquaintances.

**Charlotte Lloyd, Convention Chairman**

**P.O. Box 332**

**Mayport, FL 32267**

## LETTERS... AND A MYSTERY SHELL:

From time to time *American Conchologist* has published photos of "Mystery Shells" — in fact I was re-reading your issue of June 1989, and noticed in an article on page 2 that up until that date all published "mysteries" had been solved — an enviable track record!

I wondered if your readers might be interested in these photos of a species of *Emarginula* from Abaco, in the northeastern Bahamas. This freshly dead shell was in sediment taken from under a rock at 35', and is distinct from *Emarginula* from Abaco, in the northeastern Bahamas. This is distinct from *Emarginula pumila*, a variable species that is quite common in the northern Bahamas.

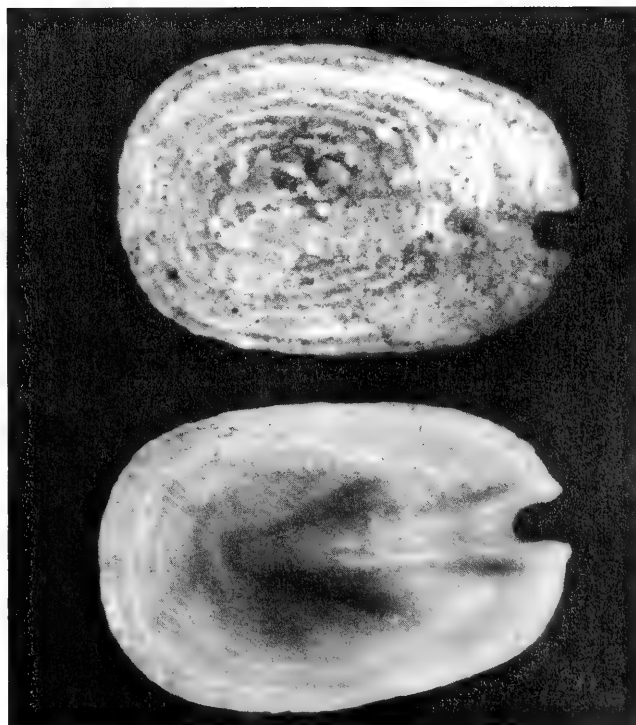
The illustrated shell is 5mm long, 3.25mm wide. The shell is depressed, less than 2 mm in height, is slightly arched and rests on its ends. Sculpture consists of frilled concentric ridges, between which are poorly defined and less prominent radial threads. The slit at the anterior end is short, broad and U-shaped. Interior glossy white, stained with purple. The darkest coloration is in an arrowhead shape at the center, and there are two narrower dark streaks that end near the anterior slit.

Can any of your readers solve this mystery for me?

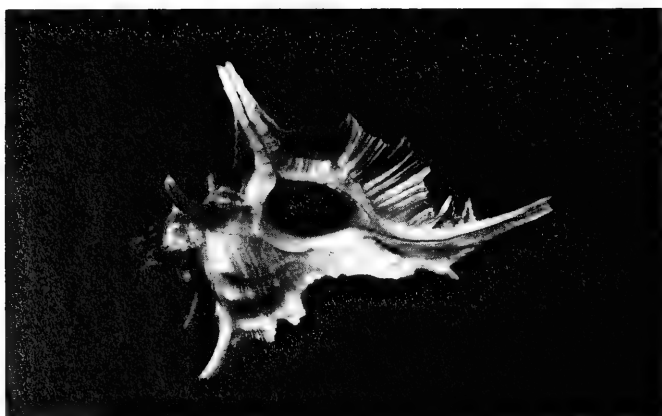
Sincerely,

Colin Redfern

6498 Sweet Maple Lane  
Boca Raton, FL 33433







*Chicoreus (Siratus) tenuivaricosus* Dautzenberg, 1927.



Photos courtesy Emily Vokes

Fig. 1. *Chicoreus (Siratus) chipolanus* (Dall). Chipola Formation, Florida; Early Miocene. Color pattern as revealed by ultra-violet light.

## THE OTHER SPECIES OF *SIRATUS* IN THE WESTERN ATLANTIC

by Emily H. Vokes

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In the Recent fauna of the western Atlantic there are 15 species referred to the muricid subgenus *Chicoreus* (*Siratus*). Two of these are the well-known Brazilian species *Chicoreus (Siratus) senegalensis* (Gmelin), and its sister species *C. (S.) tenuivaricosus* (Dautzenberg). But the other 13 species are less well-known and, considering that the group is the most numerous muricid subgenus in the western Atlantic, it seems desirable to learn a bit more about them.

To understand the variety of living forms, it is worthwhile taking a brief look at the geological history of the group. In a recent publication (Vokes, 1990b) I have given an extensive summary of the species of *Siratus* and so I will extract just the most important points here.

The origins of the subgenus *Siratus* are uncertain. The Early Oligocene species *C. (S.) stetopus* (de Gregorio) is a likely ancestor for those species similar to the type of the group: *C. (S.) senegalensis*. But, by the Early Miocene the more spinose form also had developed, as shown by several species from various localities in the western Atlantic region.

One of the common muricid species in the Early Miocene Chipola Formation of northwestern Florida, *C. (S.) chipolanus* (Dall), has a color pattern (as revealed by ultraviolet light; fig.1) similar to many living species of the *Siratus* group, especially *C. (S.) articulatus* (Reeve), with broad dark bands at the shoulder and base of the body whorl, and dark lines on the raised spiral cords. It is probable that this Chipola species with its spinose varices is ancestral to the younger *C. (S.) articulatus*.

Considering the later species of *Siratus* in the western Atlantic area, it appears that another Chipola species, *C. (S.) juliagardnerae* Vokes, with its long siphonal canal, is ancestral to the modern species *C. (S.) formosus* (Sowerby). A third Chipola species, the newly named *C. (S.) sextoni* Vokes, has a short recurved siphonal canal and only very short varical spines, which

normally merge into a flange. It is closely related to the Middle Miocene Shoal River Formation (northwestern Florida) species *C. (S.) nicholsi* (Gardner), but the latter has coarser spiral ornamentation and the tendency to three stronger spiral cords that give rise to short spines where they cross the varices. It is probable that *C. (S.) sextoni* is ancestral to the *C. (S.) domingensis* (Sowerby) — *C. (S.) springeri* (Bullis) line.

In the fossil record of the Dominican Republic the most abundant species of *Siratus* is *C. domingensis*, confined to the relatively deep-water deposits of the Mio-Pliocene Gurabo Formation. The species also occurs in the early Pleistocene Bowden Formation, Jamaica, together with *C. (S.) articulatus* and *C. (S.) formosus*. There is a strong similarity between *C. (S.) domingensis* and *C. (S.) formosus*, but in the latter species the shell is larger and more coarsely ornamented, and the siphonal canal is considerably longer. If I am correct in my belief that the descendant of *C. (S.) domingensis* is *C. (S.) springeri* (Bullis) and that *C. (S.) formosus* represents a parallel line descended from the Chipola species, *C. (S.) juliagardnerae*, then it is entirely possible to have the lineal descendants of the three Chipola species (*C. chipolanus*, *C. juliagardnerae*, *C. sextoni*) all occurring together in the Bowden beds (*C. articulatus*, *C. formosus*, *C. domingensis*), as they do in the Chipola Formation.

The first two of these Recent species, *C. (S.) articulatus* (fig.2) and *C. formosus* (fig.3), are widespread throughout the Caribbean. They are similar in appearance at first glance and the easiest means of distinguishing the two is by the greater angle of deflection of the siphonal canal in *C. articulatus*. In addition, the color pattern is different; *C. formosus* is monochromatic tan or brown and *C. articulatus* is striped with brown and white spiral bands and also has reddish-brown spiral threads. Although *C. (S.) formosus* and *C. (S.) articulatus* live today in the same general area, they do not occur together; *C. (S.) formosus* lives in slightly shallower water, from 20 to 100 meters, and *C. (S.) articulatus* lives from about 100 to 200 meters.

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Fig. 2. *Chicoreus (Siratus) articulatus* (Reeve). Jamaica, 150m.

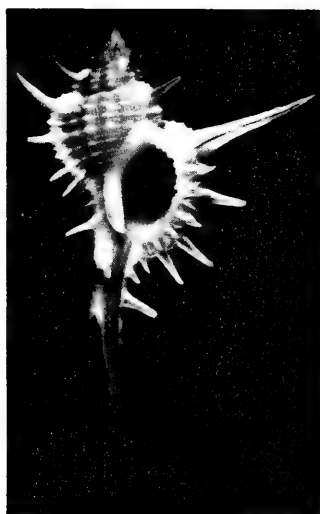


Fig. 3. *Chicoreus (Siratus) formosus* (Sowerby). Jamaica, 60m.

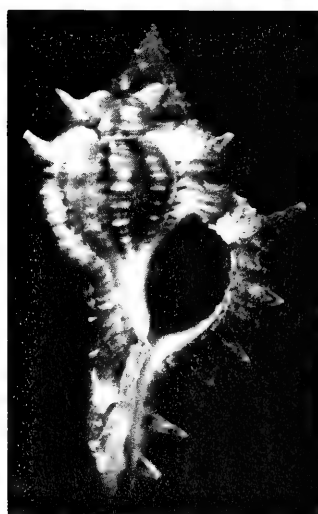


Fig. 4. *Chicoreus (Siratus) springeri* (Bullis). Rio Grande do Norte, Brasil, 25m.

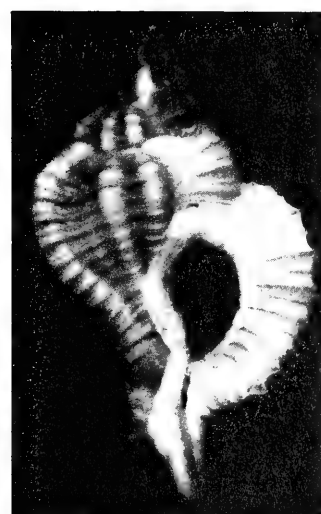


Fig. 5. *Chicoreus (Siratus) thompsoni* (Bullis). French Guiana, 45m.

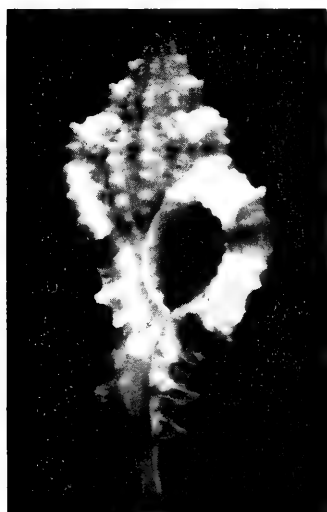


Fig. 6. *Chicoreus (Siratus) consuela* (Verrill). Martinique, 18m.

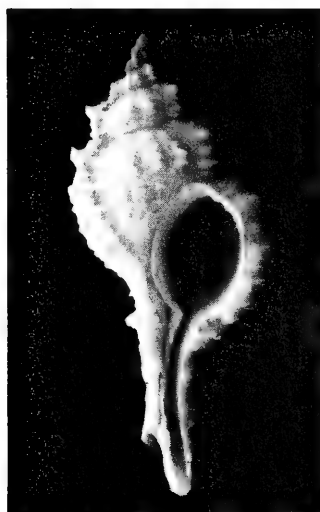


Fig. 7. *Chicoreus (Siratus) coltrorum* Vokes. Holotype. Salvador, Brasil, low tide.

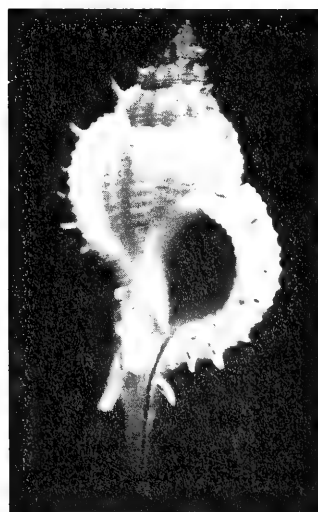


Fig. 8. *Chicoreus (Siratus) ciboney* (Clench & Perez Farfante). Puerto Rico, 365m.

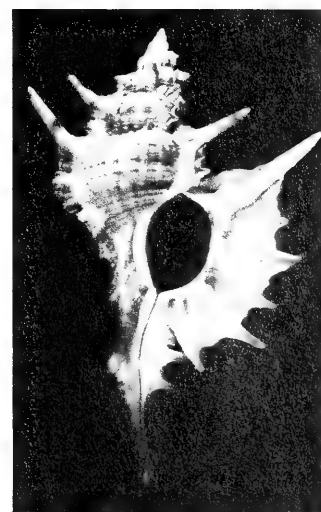


Fig. 9. *Chicoreus (Siratus) beauui* (Fischer & Bernardi). Gulf of Mexico, 230m.



Fig. 10. *Chicoreus (Siratus) motacilla* (Gmelin). Barbados, 106m.

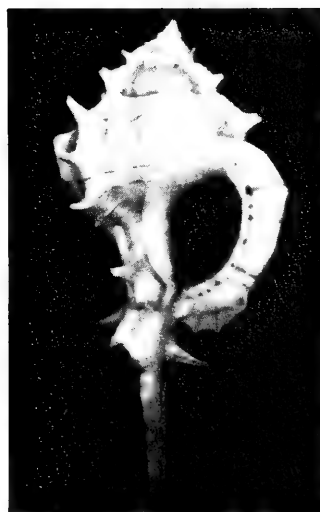


Fig. 11. *Chicoreus (Siratus) caillieti* (Petit de la Saussaye). Guadeloupe, 100m.

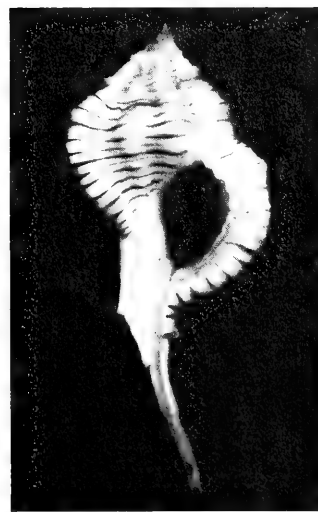


Fig. 12. *Chicoreus (Siratus) perelegans* Vokes. Guadeloupe, 80m.

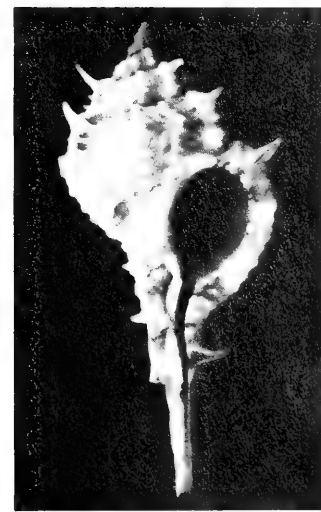


Fig. 13. *Chicoreus (Siratus) carolynae* Vokes. Holotype. Salvador, Brasil, at low tide.

Although originally described from the Recent fauna, there are many specimens of *C. (S.) springeri* (fig.4) from the Pleistocene Moin Formation, Costa Rica. These specimens strongly resemble *C. (S.) domingensis*, and differ only in the less appressed suture, the varices being deeply excavated on the abapertural side, and the stronger shoulder spine. Thus *C. (S.) springeri*, with its relatively short siphonal canal, is the most likely descendant of *C. (S.) domingensis*.

Radwin and D'Attilio (1976, p.108) considered this species a "more coarsely sculptured form" of *C. (S.) senegalensis*, but the resemblance seems to be only of subgeneric importance. The type specimen of *C. (S.) springeri* is a somewhat "atypical" gerontic individual 70mm in height. Most examples (including several paratypes) are less than 60mm and resemble the shell figured by Radwin and D'Attilio (1976, pl.17, fig.1).

Another similar species, originally described from off the coast of northern South America, is *C. (S.) thompsoni* (Bullis) (fig.5). It is also a descendant of the *C. (S.) domingensis* line. It differs from the ancestral species in having a narrower shell, with only two or three intervarical nodes in contrast to the three or four in the older form, but in many ways it is closer to *C. (S.) domingensis* than to *C. (S.) springeri*, which comes from the same area.

In the more shallow-water portions of the Mio-Pliocene Gurabo Formation of the Dominican Republic there are rare specimens (five in all) of a large species, most similar to the Recent *C. (S.) tenuivaricosus*, which lives in depths of 15-30 meters off the coast of Brazil. This species, *C. (S.) amplius* Vokes, unlike any earlier species, is doubtless ancestral to *C. (S.) senegalensis* and *C. (S.) tenuivaricosus*.

Another Gurabo species is *C. (S.) eumekes* Vokes, which is found only in the coralline facies of the Gurabo Formation, indicating that its nearest relative is the living reef-dweller *C. (S.) consuela* (Verrill). In the Middle Pliocene Agueguexquite Formation, near Coatzacoalcos, Veracruz, we find another species, *C. (S.) habros* (Vokes), most similar to the Dominican *C. (S.) eumekes*. This species likewise resembles the later *C. (S.) consuela* but may be distinguished from the latter by its much stronger spiral cords, which result in more produced varical spines, and the more incised suture, which gives the whorls of *C.*

*(S.) habros* a more rounded appearance.

Their Recent descendant, *C. (S.) consuela* (fig.6) is widely distributed in reefal environments, from off the coast of Texas (Flower Garden Banks) to Curaçao, as well as in the Pleistocene Moin Formation of Costa Rica, where we have numerous specimens from several localities, associated with reefal coral material.

A second living species, previously identified as the Gulf/Caribbean *C. (S.) consuela* is the recently named (Vokes, 1990a) *C. (S.) coltrorum* (fig.7). It occurs off the coast of northern Brazil, from Rio Grande do Norte to Espírito Santo, and differs from *C. (S.) consuela* in having a protoconch of only one and one-half whorls; *C. (S.) consuela* has two and one-quarter whorls. In addition, the suture of *C. (S.) coltrorum* is more appressed, causing the individual whorls to appear more rounded and distinct than in *C. (S.) consuela*, similar to *C. (S.) habros*.

Another Dominican species that is confined to only the most deep-water portions of the Gurabo Formation is *C. (S.) yaquensis* Maury, indicating that it is ancestral to the living *C. (S.) ciboney* (Clench & Pérez Farfante) (fig.8), which lives today in depths of 350-450 meters — one of the deepest habitats for this deep-water subgenus.

In addition to these species that have a long geological record there are several very deep water forms that seem to have no known fossil antecedents. This is obviously because beds of these extreme depths rarely, if ever, become exposed at the surface. Almost certainly these species have just as long a history as those mentioned above — we just do not have any record of what it is.

Among these would be *C. (S.) beauii* (Fischer and Bernardi) (fig.9), one of the best known and most unmistakable members of *Siratus*, which is common in deeper water (115-463 meters), from the Gulf of Mexico to Uruguay. The variation in varical webbing in this species was noted by Bullis (1964, p.104), who observed that contrary to popular belief neither depth nor bottom type had any effect on the presence of elaborate webbing. This was dramatically demonstrated by Bayer (1971, text-fig.27), who figured two extreme examples from the same dredge haul.

Another well-known species, *C. (S.) motacilla* (Gmelin), appears to be confined to the Lesser Antilles, from Dominica to

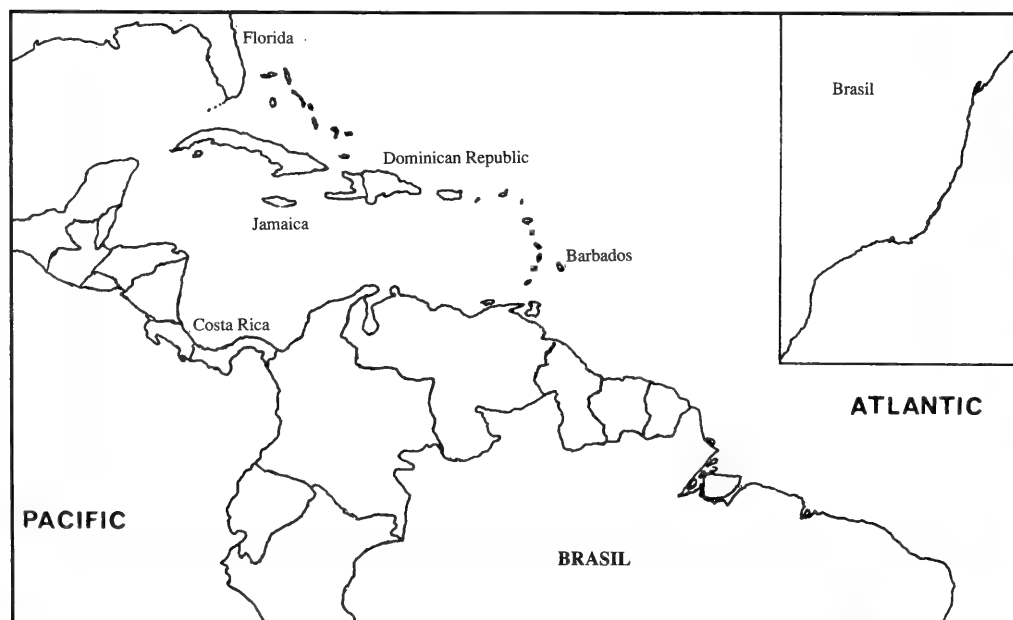


Fig. 14. *Chicoreus (Siratus) alabaster* (Reeve). Philippines, 183m.

Barbados. It is one of four closely related species living in deeper water of the Caribbean that are much alike in having the siphonal canal extremely deflected, more so than the other species assigned to this subgenus. These four, *C. (S.) motacilla* (fig.10), *C. (S.) cailleti* (fig.11), *C. (S.) perelegans* (fig.12), and *C. (S.) aguayoi*, differ from each other in the nature of the varical ornamentation, ranging from none in *C. perelegans* to extremely long in *C. aguayoi*, and the number of intervarical nodes, with two in *C. motacilla* and *C. perelegans*, two to four in *C. cailleti* and four in *C. aguayoi*.

Although *C. (S.) perelegans* Vokes (new name for *Murex elegans* Beck in Sowerby, 1841, not Donovan, 1804) has been considered a synonym of *C. (S.) cailleti* by some authors, it may be distinguished by its heavy appearance, the prominent spiral brown lines, and, especially, by the complete lack of any varical spines and only the most minimal of varical flanges.

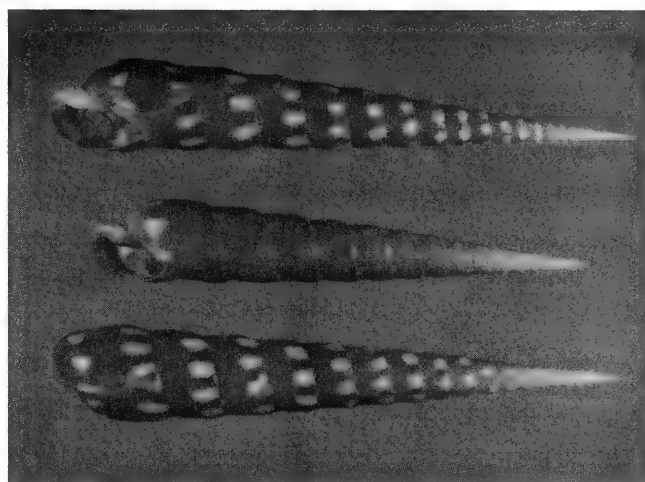
The rarest of these four species, *C. (S.) aguayoi* (Clench and Pérez Farfante), was placed in synonymy with *C. (S.) formosus* by Radwin & D'Attilio (1976, p.106) but it may be distinguished by two important criteria. One is the unusual protoconch, which is large, bulbous, of two whorls with the first noticeably larger than the second and rotated at an angle to the rest of the shell. The second criterion is the extremely deflected siphonal canal, which is closer to the group of *C. (S.) motacilla* than to *C. (S.) formosus*. If it were not for the unusual protoconch, I would suggest that *C. (S.) aguayoi* is only an extremely spinose form of *C. (S.) cailleti*, which is otherwise similar.

The last and one of the most recently named of the group is *C. (S.) carolynae* Vokes (fig.13) a form originally confounded with *Haustellum chrysostoma*, but the resemblance is only superficial, as both have three essentially non-spinose varices and brown color bands. There is a closer relationship to the members of the *C. (S.) motacilla* group, but the siphonal canal of *C. (S.) carolynae* is not so strongly deflected. However, this Brazilian species is found in extremely shallow water and the resemblance to these four deep-water forms may be only convergence.

The vast majority of the species referred to the subgenus *Siratus* occur in the western Atlantic, but the group is not confined to this area. In the Indo-Pacific fauna there are a few species (from two to five, depending on which ones you consider synonyms). The most spectacular of these is the Philippine deep-water *C. (S.) alabaster* (Reeve) (fig.14). The more recently named *C. (S.) vicdani* (Kosuge) may be a synonym. Less beautiful but still a valid member of *Siratus* is the Japanese *C. (S.) pliciferoides* (Kuroda), of which *C. (S.) propinquus* (Kuroda & Azuma) and *C. (S.) hirasei* (Shikama) are almost certainly synonyms.

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## NOTES FROM THE PAST

by Bob Purtymun

### Dive Log Entry:

Dec. 10, 1983 — Dive #1 — Scuba 10-50' 64 minutes  
Dip Reef, off Townsville, Queensland, Australia

After a very rough crossing from Coil Reef, the skipper of the "Divemaster" maneuvered upwind and dropped anchor in the lee of Dip Reef. We were on the southern end of Australia's Great Barrier Reef. Here the shallow reefs are scattered, with miles of open water in-between. At this time of year the austral wind roars through these open areas, causing rather rough water.

It is always a relief to get off a pitching and rolling boat, so I hurried to get into my dive gear, and jumped overboard. The water was warm and very clear. As I drifted downward, I could see trails in the sand thirty feet below. The sand was fine and silty with scattered patches of antler coral — just heaven for a sand sheller.

At the end of the trails I found *Terebra*, *Cerithium*, *Strombus*, *Conus*, *Nassarius*, and even a *Phos textum* (Gmelin, 1791). The lump at the end of one trail produced a strange-looking orange *Terebra*. I bagged it thinking, "Boy, that's something new." Back on the boat, examination proved that it was a *Terebra guttata* (Roding, 1798) with only one row of spots on the body whorl. As the mollusc grew the body whorl covered this row of spots and the end result was a spotless *T. guttata*. I have seldom seen aberrant *Terebra*. I think that this one is high on the list for freaks.

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**DORIS UNDERWOOD**, COA Vice-President, reports that a new Speakers List is now available for shell clubs. This invaluable list of qualified individuals who are willing to do programs for shell clubs will be mailed to club representatives of all COA member shell clubs.

**Tom Rice** is planning to publish a **Directory of Conchologists** late in 1992, containing the names, addresses and interests of shellers — beginners, amateurs and professionals — around the world. If you are interested in participating in this project, contact Tom at P.O. Box 219, Port Gamble, WA 98364



# THE OPERCULUM AS AN AID TO CLASSIFICATION

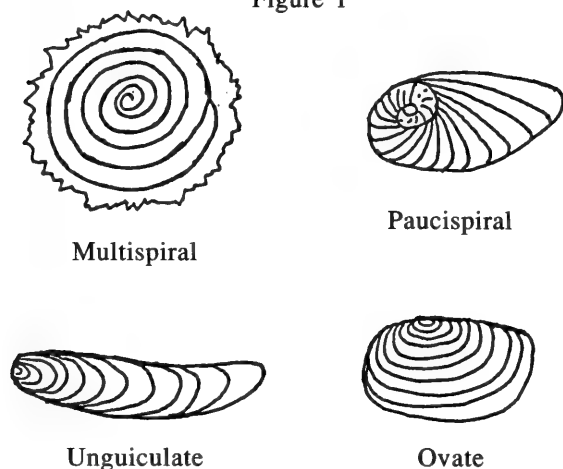
by William F. Clendenin

When I first began collecting shells about twenty-five years ago I was intrigued by the opercula. Even as a beginner I always tried to save them. I still consider a shell incomplete if it is missing its operculum. As I tried to use the operculum as a guide to classification I found, with a few exceptions, that it is not very useful at the generic level but fairly consistent at the family level. Opercula may be separated by composition as chitinous (= corneous = horny) or calcareous (calcium carbonate = stony). They may be further classified by shape. In trying to decide how many basic shapes there are, I settled on four: multispiral, paucispiral, ovate, or unguiculate (figure 1).

The multispiral form grows in a spiral pattern, gradually increasing in size. The paucispiral also grows spirally but in a geometrically increasing size. An ovate operculum grows concentrically from a nucleus on the side. An unguiculate form grows similarly, but starts with a nucleus at the end. (I could be persuaded that there are only two types, those that grow spirally and those that grow concentrically from a nucleus.) There are, of course, numerous variations on these basic types.

Following Abbott's and Vaught's classifications, the following tabulation shows the opercula for major groups.

Figure 1



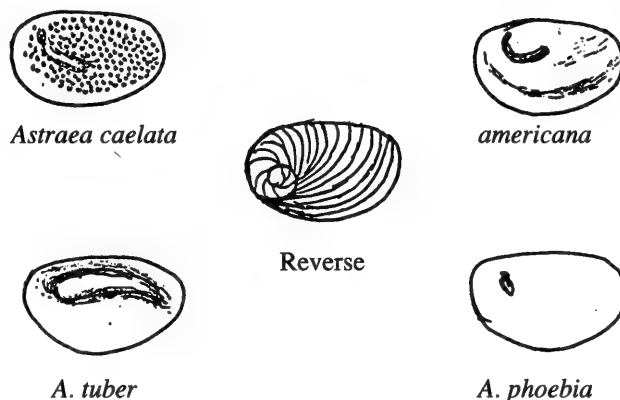
## SUBCLASS PROSOBRANCHIA ORDER ARCHAEOGASTROPODA

Pleurotomarioidea		
Pleurotomarioidea	Chitinous	Multispiral
Haliotidae	None	
Fissurelloidea	None	
Patelloidea	None	
Trochoidea		
Trochidae	Chitinous	Multispiral
Turbinidae	Calcareous	Paucispiral
Phasianellidae	Calcareous	Paucispiral
Neritoidea	Calcareous	Paucispiral

## ORDER MESOGASTROPODA

Littorinoidea	Chitinous	Paucispiral
Cerithioidea		
Turritellidae	Chitinous	Multispiral
Vermetidae	Chitinous	Multispiral
Potamididae	Chitinous	Multispiral
Cerithiidae	Chitinous	Paucispiral

Figure 2



Stromboidea		
Xenophoridae	Chitinous	Ovate
Strombidae	Chitinous	Unguiculate
Cypraeoidea	None	
Naticoidea		
Polinicinae	Chitinous	Paucispiral
Sininae	None	
Naticinae	Calcareous	Paucispiral
Tonnoidea		
Cassidae	Chitinous	Ovate (elongate)
(except Cypraeacassis — None)		
Ranellidae	Chitinous	Unguiculate
Bursidae	Chitinous	Unguiculate
Tonnididae	None	
Ficidae	None	
Epitonioidae		
Janthinidae	None	
Epitoniidae	Chitinous	Paucispiral
Eulimoidea	None	

## ORDER NEOGASTROPODA

Muricoidea		
Muricidae		
Muricinae	Chitinous	Unguiculate
Purpurinae	Chitinous	Ovate
Aspelininae	Chitinous	Ovate
Trophoninae	Chitinous	Unguiculate
Coralliophilidae	Chitinous	Unguiculate
Columbellidae	Chitinous	Unguiculate
Buccinidae	Chitinous	Unguiculate
Melongenidae	Chitinous	Unguiculate
Nassariidae	Chitinous	Unguiculate
Olividae		
Olivinae	None	
Olivellinae	Chitinous	Unguiculate
Harpidae	None	
Mitridae	None	
Turbinellidae*	Chitinous	Unguiculate

\*now Vasidae again.

Figure 3

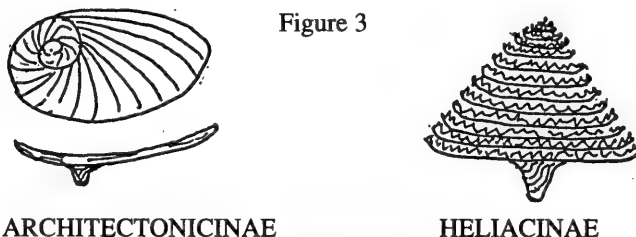
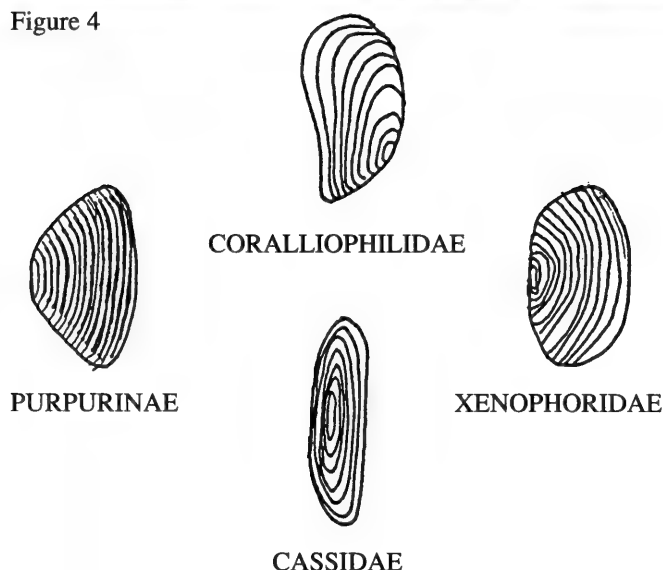


Figure 4



Volutidae		
<i>Voluta musica</i>	Chitinous	Unguiculate
<i>Lyria barnesii</i>	Chitinous	Unguiculate
Marginellidae	None	
Cancellarioidea	None	
Conoidea		
Conidae	Chitinous	Unguiculate
Terebridae	Chitinous	Unguiculate
Turridae	Chitinous	Unguiculate

#### SUBCLASS HETEROBRANCHIA

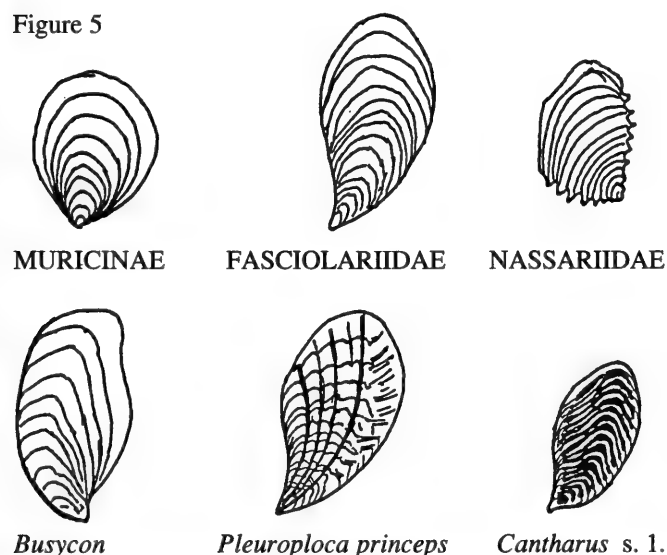
Architectonicoidea		
<i>Architectonica</i>	Chitinous	Paucispiral
<i>Heliacus</i>	Chitinous	Multispiral

#### SUBCLASS EUTHYNEURA

Most of the higher gastropods have lost the operculum.

My preliminary study has left me with more questions than answers, but there are a few observations worth considering. In the Archaeogastropoda all opercula are spiral. Those forms that have lost the operculum (Haliotidae, Fissurelloidea, and Patelloidea) have adopted a habit of clamping onto rocks so that an operculum would be an encumbrance. The Mesogastropoda are a mixed bag. Most have spiral opercula, but there are a few ovate

Figure 5



and unguiculate ones. *Janthina* are pelagic, so have no need of an operculum. Eulimoidea are parasitic while Hipponicoidea and Crepiduloidea have adopted a clamping mechanism in lieu of an operculum.

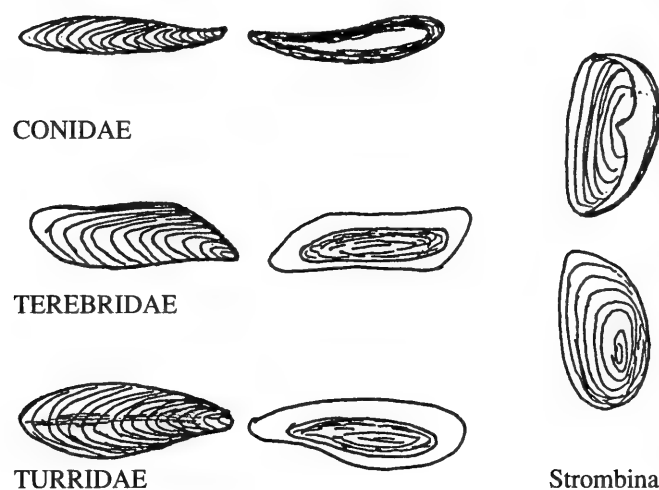
The reason for the loss of the operculum in the Cypraeoidea is not obvious to me. Did the cowries develop the toothed, constricted aperture because they had lost the operculum, or was it the other way around? Why did the Naticoidea adopt three different solutions? The Polinicinae have chitinous opercula, the Naticoidea have calcareous ones, while the Sininae have lost theirs altogether. Why does the *Cypraea* have no operculum when the rest of its Cassidae kin do have them? The Tonnidae and the Ficidae have wide, exposed apertures but no operculum. Why?

There are no spiral opercula in the Neogastropoda. In the higher forms they tend to be obsolete or absent. From these observations I have concluded that the evolutionary trend is from multispiral to paucispiral to ovate to unguiculate, with a tendency toward reduction and then loss of the operculum. I cannot see any reason for the development of calcareous opercula in certain groups.

#### Some Variations on a Theme

One of the exceptions to the use of the operculum in the iden-

Figure 6



tification below the family level occurs in the Turbinidae, where individual species tend to have unique opercula. Figure 2 illustrates variations within the *Astraea*. The Architect Shell shows a great diversity between *Architectonica* and *Heliacus* (Figure 3). The former has a concave, paucispiral operculum while the latter has a cone-shaped multispiral one. A common feature of both is a peg which attaches the operculum to the foot. Figures 4 to 6 illustrate some common types that tend to be fairly consistent within families. An interesting twist is *Pleuroploca princeps* from Panama which has an operculum almost identical in outline to *P. gigantea*, its Florida relative, and other Fasciolaridae, but which has deep grooves instead of being smooth.

As a practical example of the use of the operculum for identification, I recently collected some *Strombina* in Panama. I had never seen this genus and since they had turrid-like notches I was about to file them with my unidentified turrids when I examined a tiny operculum under a microscope. The obvious difference from turrid opercula led to further investigation until I was able to classify them correctly.

I hope this brief review will stimulate others to study this interesting subject. I would like to know of any published material on opercula. The observations above are my own, but I used Abbott's *American Seashells* and Keen's *Sea Shells of Tropical West America* as references.

From the Something-to-Think-About Department:

## STANDARDS FOR SHELL GRADING: Some Musings and Proposals

by Charles Owen

A considerable amount of the commerce and trading of shells is done from a distance, with the "goods" described by words and numbers. How do you know what you are getting? How do you know whether the price you are paying is equal to the "quality" of the shell?

Besides the obvious differences among species and the rarity of some, there are other important characteristics that differentiate shells. These are often overlooked by the novice collector, but are critically evaluated by those who are knowledgeable. In this article, I hope to open a discussion of evaluation criteria that might lead to better collections for all of us.

Collectors assign different degrees of importance to evaluative criteria, but the factors discussed here are all probably used to some degree in making choices. I have divided them into two broad classes: those that *directly* affect the quality of a shell as a physical object, and those that *indirectly* affect it, in other words, affect its value in a larger sense as an object of scientific or historical interest. In most cases, these factors have been thoroughly discussed in the literature of malacology or conchology; in a few cases (most particularly in the case of aesthetic grading) I have elaborated on the existing material or have brought together elements that were discussed independently elsewhere.

The direct factors are **technical quality, aesthetic quality, presence of opercula or other auxiliary parts, and preparation.** Indirect factors are **size and data.**

### TECHNICAL QUALITY

In July, 1973, the *Hawaiian Shell News* proposed a means for grading shells. Their "shell grading standards" were designed in response to the needs of collectors. Too many dealers and traders were shipping poor quality shells — either intentionally or out of ignorance of collectors' desires. As still occasionally happens, shells were being shipped with broken spines, chipped lips, unsightly growth marks and other blemishes without indication in the communications before the transaction. Since there were no agreed-upon ways to distinguish these deficiencies, the rule was "buyer beware."

After some discussion in issues of the *Hawaiian Shell News*, the proposed standards were incorporated as the ISGS, or **International Shell Grading Standards.** Now generally accepted by dealers and collectors around the world, they are defined as:

•**Gem:** A perfect specimen, with an unblemished spire, unbroken spines and lip without chips, fully adult and normally colored. A shell without a flaw. Well cleaned, both inside and out. Cowries must have original color and gloss. Bivalves must have both valves, properly matched and unbroken.

•**Fine:** An adult shell with only minor flaws and with not more than one shallow growth mark. Must have original color and gloss. A cone may have a rough lip or one small chip. The spire must be unblemished. A Murex may have not more than two minor frond breaks. No repairs — filed lips or mended knobs, for example — are permitted.

•**Good:** A reasonably acceptable shell, with a few defects such as growth marks, broken spines, worn spire or lip chips. Minor fading of color permitted. Specimen may be slightly sub-adult. A good quality shell must faithfully display all the basic characteristics or the species.

•**Fair:** May be obviously dead or beach collected with chipped lips, faded color, growth faults or imperfect spires. This grade — comparable to the present "commercial" quality — is not acceptable for mail order retailing and should not be offered as collectors' specimens.

These standards have been of great help, and many collectors rely upon them. Although most collectors prefer *gem* shells, there are species that almost never are found in gem condition, or are very rare and, therefore, still desirable in less than gem

condition. The ISGS allow the dealer to offer less-than-perfect shells with honesty, and permit the buyer to obtain hard-to-get species at lower prices without great loss of quality (at Fine or "Fine +" grades, for example).

From necessity, the ISGS are far from absolute, however, and in some cases they are difficult to apply. Species with complex sculpture, pattern or form, for example, are hard to classify. How many broken spines could a "gem" specimen of *Spondylus americanus* really have? Is an unsightly pattern change in a specimen of *Conus marmoreus* a growth mark? What do you do with shells from wave-battered coasts that are, perhaps, never found in "gem" condition? Should you set up a *relative gem* standard for that species that is "situationally variant" from the normal rules? There may still be useful work that can be done to improve the ISGS.

In any case, the need for a way to grade imperfections has been well substantiated by the success of the ISGS. With the change that "cleaning" issues be separated from the rest of the standard, I propose the ISGS as a measure of "technical quality." The new label is applied to distinguish it from another standard that I think could be usefully created. This standard deals with issues of appearance and novelty within the variety exhibited by a species.

### AESTHETIC QUALITY

In an article several years ago in the *Chicago Shell Club Newsletter* (combined issue: Vol. 11, Nos. 7, 8 and 9 [1976-77]) I noted that Mr. J. B. Lozet, publisher of *Le Peigne de Venus*, used an "exceptional" category in his catalog of shells to describe perfect shells of unusually handsome appearance. This additional categorization seemed to reflect a need for another way to classify shells.

Since my own interest in shells stems from my professional interests in form, function and aesthetics as a professor at Illinois Institute of Technology's Institute of Design, it was natural for me to look for the especially beautiful and novel in the shells my wife and I began collecting in the late 1960's. After the usual period of learning, we began in the 1970's to communicate with dealers around the world to obtain specimens. No matter what we said in letters, we were unable to convey effectively our desire to have the "exceptional" shells that fit our growing ability to discriminate among what was possible within intraspecific variation. Statements explicitly describing what we meant by beauty — and authorizations to charge more for shells with those qualities — went unheeded.

\* 3021 S. Michigan Avenue, Apt. 507, Chicago, IL 60616. Charles Owen is co-editor of *Thatcheria*, newsletter of The Chicago Shell Club, from which this article has been reprinted. Comments on his article will be forwarded to Mr. Owen for publication in *Thatcheria*. They will also, if appropriate, be printed in *American Conchologist*.



Figure 1. *Terebra strigata* Sowerby, 1825 is difficult to collect without growth marks, chips and disfigurements. All in this group are inferior by technical standards. Yet, there is a clear progression in aesthetic quality from left to right as the pattern is clearer, bolder and more regular.

We found, however, that when we were able to visit dealers and select from multiple specimens of the same species, we inevitably were able to distinguish "normal" forms and degrees of exceptionality. Subsequent experiences over the years with shell purchasing in bulk for sales at Chicago Shell Club, have made very clear what any discriminating shell dealer knows: it is possible to classify shells according to their aesthetic quality independent of their technical quality graded according to the ISGS.

With that in mind, the following grading system is proposed as an additional standard for judging shell quality:

•**Exceptional:** Particularly handsome in pattern, color, surface sculpture and refinement of form as these characters apply to a species. Unusual color forms, such as albino, golden and melanistic variations fit in this category. Shells meeting this standard should represent two to five percent of those found for a species.

•**Select:** Clearly nicer than ordinary, but with some imperfection or inconsistency of pattern, color interplay, sculptural or form development that separates them from the exceptional. From 20 to 30 percent of the shells found for the species belong here.

•**Typical:** Shells of the normal run with the ordinary discontinuities, inconsistencies and visual blemishes that, while not technically limiting (in the ISGS sense), decidedly place them in the category of the average. About 50 to 60 percent of the specimens found — the majority — should fit this category.

•**Abnormal:** Reserved for the shell that is exceptional, but in a discordant fashion. Unsightly freaks and shells whose growth has produced disfiguring variation share this class.

Aesthetic quality is even more difficult to judge than technical quality because it is inherently relative and, to a greater extent, subjective. Probably for this reason, most dealers have avoided the issue. But it is possible with relatively few specimens to begin to appreciate the range of variation in a species, and a dealer or self-collecting trader can easily establish norms for such grading. However, since relativity is an essential aspect of this grading process, and since judgment requires a reasonably large sample, there must be some provision for the shells that are so rare that only a very few have been seen by the evaluator. For this special situation I propose a fifth category:

•**Unclassified:** Shells thus far so infrequently encountered that no estimate of variability can yet be made.

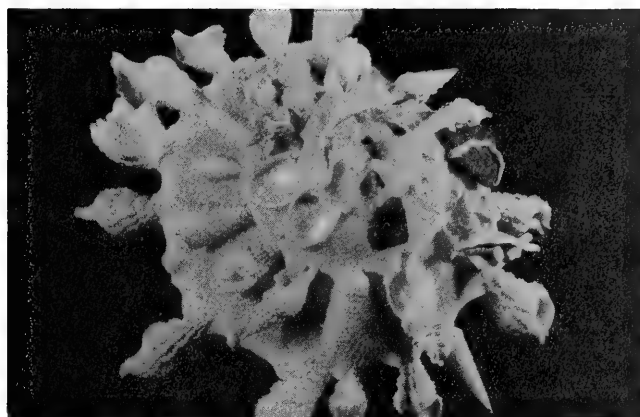


Figure 2. This collector's collector, *Xenophora pallidula* (Reeve, 1842), rates an aesthetic "Exceptional" for the choice and positioning of its ornaments.

## PRESENCE OF OPERCULA OR OTHER AUXILIARY PARTS

Just as any treasured object loses some of its value if some part of it is lost, a shell without its operculum or other auxiliary parts (the accessory plate and apophyses of *Cyrtopleura costata* for example) is somewhat diminished in value. This issue transcends the scientific interest in having all parts present. It is actually a matter of intellectual aesthetics — the desirability of completeness. Why keep the operculum? — Why not? It adds to the completeness. If it were feasible to maintain live shells, this argument would probably be extended to retaining the animal! After all, consider the beauty of the living Volute.

For a proposed grading standard, the values are:

•**Complete:** All shell parts present. Includes operculum, if existent, or auxiliary parts for those species that have them (e.g., some bivalvia species).

•**Incomplete:** Operculum or other parts missing.

## PREPARATION

Preparation, I believe, should be treated separately from *technical quality* (the proposed modification to the otherwise usable ISGS). In the ISGS a *gem* shell is "well cleaned, inside and out." While chips, breaks and growth marks are permanent imperfections, cleaning problems are not necessarily so, and thus should be dealt with in a separate standard on *preparation*. In fact, specimens with opercula may often still have them if they were not cleaned before shipping. Dealers inadvertently also may cause irreversible damage if they use volume cleaning techniques (almost a certainty for commercial grade processing). In this situation, shells will be better off cleaned by the purchaser who will take more time and care than the dealer. Proposed grading categories for preparation are:

•**Good:** Ready for the display case.

•**Adequate:** Some cleaning done; there may be more work to be done, but there is no damage from prior cleaning.

•**Bad:** Damage from cleaning (discolored aperture, loss of gloss, loss of features from acid, hinge degradation from over-bleaching, etc.).

•**Uncleaned, Animal Removed:** Animal removed but no external or internal cleaning attempted, whether or not an operculum or other parts are present should be treated in the operculum, et al assessment.



•**Uncleaned, Animal Not Removed:** Animal preserved by alcohol, drying or some other means, no cleaning inside or out.

## SIZE

Values for size, an indirect standard, permit the collector to assess his specimens against the known range for a species. Not too long ago, it was difficult for anyone except a professional to place a given specimen in the size spectrum for its species. Over the last few decades, however, there has been a concerted effort to establish information on record sizes, and identification books have become increasingly accurate in listing size ranges for species. Record size information is collected by Wagner and Abbott for their **Standard Catalog of Shells** and is published regularly in the **Hawaiian Shell News**. The proposed standard for size is:

•**Giant:** A shell of highly unusual size. Shells in this category should be within striking range of the record listed for the species. Less than one percent of specimens should qualify.

•**Large:** Shells occupying the upper 20-25 percent of published ranges for the species.

•**Normal:** Shells of typical size: in the middle of the range to 25-30 percent on either side.

•**Small:** Less than normal size for the species, even though fully mature, and otherwise typical for the species; within 20-25 percent of the smallest size given for the range.

•**Dwarf:** A fully mature specimen, highly unusually small: at the bottom of the size range — less than one percent of specimens should qualify.

Confusion is always possible when juveniles are considered. Because every size should be given, even for juveniles, it is possible to imply incorrectly that a shell is small, or even a dwarf when it is simply a juvenile. To avoid this problem, shells should be assumed to be fully mature and, if not, given the additional label **Juvenile**.

## DATA

Last of the proposed standards is the indirect factor, data. While it has no direct effect on the quality of the shell, good data makes the difference between a shell useful to science and one that is not. In a broader sense, data also adds dimensions of history and geography to a collection. At rarified levels, a shell's history may be more important than the shell itself in determining value! Like fabled jewels, the stories of rare shells and those who owned them add immeasurably to the mystique.

Before offering a standard for data, I would like to discuss what makes good data. There are five elements that contribute. Some are more important than others. Some are easy to obtain, even after the fact: others can only be supplied by the actual collector. Most frustratingly, some of these last can be purposefully indeterminate or even misleading — made so to protect sources for rare shells or to create demand for "new" species. As in any field for which data is important, the job of authentication is one that cannot be taken lightly.

The five elements of data are *name*, *locale*, *habitat*, *collecting conditions*, and *collector*.

*Name* is the scientific name given for the species. It should be complete, including genus and species, author and date. Conventions of description — capitalization, use of parentheses and italicization if typeset — should be followed. As long as the scientific name is given, it is all right to provide a common name (or names) for additional information.

*Locale* specifies where the shell was collected. Ideally, this should pinpoint the site. In practice, data on locale is frequently vague. There appear to be about seven levels of accuracy that are actually used, ascending in precision on a roughly exponential scale. In order of increasing precision and, therefore, increasing value these are: (a) a vague region, for example: "Indo-Pacific";

(b) a 1,000,000 square mile area: Philippine Islands; (c) a 100,000 square mile area: "Sulu Sea, P.I."; (d) a 10,000 square mile area: Palawan, P. I.; (e) a 1,000 square mile area: "Honda Bay, Palawan, P. I."; (f) a 100 square mile area: "Panagtaran Point, Palawan, P. I."; and (g) a 10 square mile area: "Matinloc Island, Palawan, P. I."

*Habitat* describes the immediate environment in which the shell was found. Data here should be specific enough that another collector could find similar specimens by looking in the environment specified. Three kinds of information should be included: (a) the general substrate (e.g., "on mud flats," "under large rocks," "3/4 inches deep packed in sand," "in turtle grass," "at the base of coral heads," "in spaces between boulders," "on wharf pilings," etc.), (b) the depth at which the shell was found (e.g., "at the high tide mark," "in 1-2 feet of water," "at 15-30 feet," "at 200 feet," etc.) (c) any associations deducible: (e.g., "around green sea anemones on which it feeds," "in mussel beds of *Brachidontes* species," "attached to mangrove roots," etc.).

*Collecting Conditions* record the conditions under which the shell was discovered. Issues to be covered are six: (a) collecting date, (b) time of day or night, (c) tide condition (e.g., "low tide," "between tides," "high tides," "slack tide," "while tide running full," etc.), (d) water condition (e.g., "heavy surf," "fast moving water," "sheltered still water," "turbid water," "polluted bay water," "brackish water," "highly saline water," etc.), (e) unusual weather (e.g., "during a rainstorm," "after a hurricane," "in unusually cold weather," "following a local heat wave," etc.) and (f) how the shell was collected (e.g., "dug with clam gun," "scuba collected," "raked on sand flat," "fanned from sand while snorkeling," "pried from rock with spatula," "trapped in crab pots," "trawled," "taken in tangle nets," "dredged," "hand collected," etc.).

*Collector* identifies the individual who actually found the shell or an individual close enough to the collecting event to be able to supply the data accurately. Although this does not seem too important, it may be the most valuable item of all if, for scientific reasons, it is necessary to seek additional specimens, corroborate data or visit the collecting site for direct observations. The identity of the collector may also be helpful in tracing the development of major collections and attributing contributions made to the growth of knowledge in the conchological field.

In evaluating the quality of data, the traditional grades have been "full data," "partial data" or "no data." It is easy to sympathize, considering all of the desirable information discussed above and knowing how shells actually make their way from native fishermen through a chain of middlemen to a wholesale dealer and, perhaps, a store before reaching a collection. Nevertheless, there ought to be encouragement for better recording of data, and dealers as well as self-collectors could begin to raise the standards — just by introducing better data with the shells they are selling and trading. Competition has a way of rewarding those who provide better quality.

For a dealer, unfortunately, it is virtually impossible to control sources for shells as closely as would be desired. Since it is then impossible to guarantee consistency in the quality of data, a means for grading the data that can be obtained would be useful. The following standard is proposed:

•**Complete:** All five data categories are covered, with full development of subtopics and an obvious interest in providing as much information as possible.

•**Comprehensive:** Name, locality, habitat and collecting conditions provided. Distinguished from complete data by some missing or vague subtopic information and/or lack of collector identification.

•**Detailed:** Name, locality and habitat provided. Collecting conditions may be largely missing, but locality and habitat information should be relatively complete.

•**Basic:** Name and locality provided. Other information missing or very sketchy.

•**Nominal:** Name only provided.

•**No Data:** Normally only applicable to commercial grade shells, but remotely possible for a specimen quality shell as yet undescribed and obtained from a source that did not record data.

## CONCLUSIONS

Standards are difficult to define and agree upon, let alone apply. Still, the ISGS have been essentially successful, and communications among dealers and collectors have improved as a result. I think that it is time to consider extending the concept.

Dealers and traders would do themselves and others a service by communicating more about their shells' characteristics. Not only would transactions be completed with greater satisfaction to all, prices could be matched more appropriately to shell condition. High quality shells deserve higher prices; shells with deficiencies should be recognized as such and given bargain status.

Most importantly, science and knowledge about mollusks generally will be better served as greater attention is paid to details. As pressure upon molluscan environments continues to grow with the increase of human population, better data will be increasingly important for monitoring and surveying fragile ecosystems.

The standards outlined are offered as proposals to the shell collecting community. Comments and discussions are called for.

Those prolific illegal immigrants from the Caspian Sea, the Zebra Mussels, have been making news for some time now, because of their troublesome and destructive infestation of the Great Lakes. These undesirable aliens are now being studied as a possible additive in the construction of highways. Sounds suspiciously like a cement overcoat, doesn't it? Probably the next best we can do if deportation isn't a viable option.



Joe and Marianne Lampone with their "much decorated" exhibit, "Marginellas of the African Provinces," at the Jacksonville Shell Show. Among the awards the Lampones took home to Orlando were the COA Trophy and Shell of the Show.

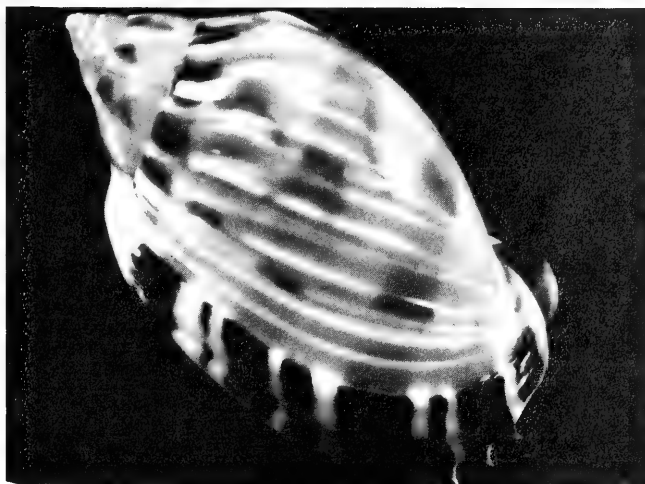


Figure 3. An exceptional helmet shell. Given as proposed, a listing and data for this specimen would be:

**Technical Quality:** Gem

**Aesthetic Quality:** Exceptional

**Auxiliary Parts:** Incomplete (operculum missing)

**Preparation:** Good

**Size:** Normal, 46mm

**Data:** Complete

**Name:** *Casmaria erinaceus kalosmodix* (Melvill, 1883)

**Locale:** Lagoon, 2-4 km north of Paea, Tahiti

**Habitat:**

**Substrate:** Coral head

**Depth:** Approximately 10 meters

**Associations:** NA (shell was found fresh dead)

**Collecting Conditions:**

**Date:** January 1, 1979

**Time of day:** Afternoon

**Tide conditions:** Between tides

**Water Conditions:** Normal, no current, 15 meter visibility

**How Collected:** Scuba-collected fresh dead on top of a coral head (apparently eaten: well-cleaned internally and operculum missing)

**Collector:** Charles Owen

## ENDANGERED MOLLUSKS

The following freshwater mollusks have been added to the Federal Register of Endangered Species in 1991:

*Quadrula fragosa* Conrad, 1835, the Winged Mapleleaf Mussel, which occurred extensively throughout the Mississippi, Tennessee, Ohio and Cumberland drainages, is now limited to a single known population in the St. Croix River in Wisconsin and Minnesota.

*Pleurobema gibberum* Lea, 1838, the Cumberland Pigtoe Mussel, once found in five of the Caney Fork tributaries in Tennessee, is now reduced to isolated populations in four of these tributaries, due to deterioration of water quality from coal mining and poor land use.

*Tulotoma magnifica* Conrad, 1934, the Alabama Live-bearing Snail, from the Coosa and Alabama river systems, a riffle and shoal dweller, has been declining for 50 years, due to habitat modification from navigation and hydropower development. It is now extinct from the Alabama River system.

It is illegal to collect these species.

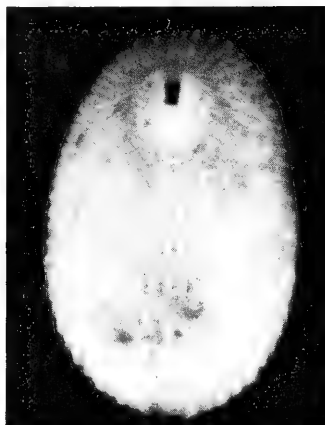
—from the *National Capital Shell Club Newsletter*

## WESTERN ATLANTIC FISSURELLIDAE

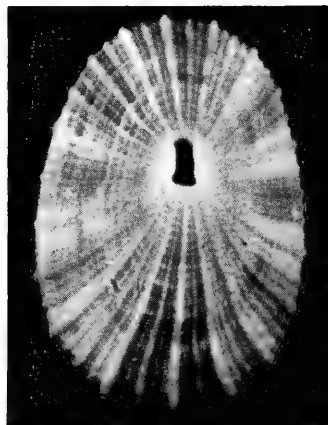
by Kevan and Linda Sunderland



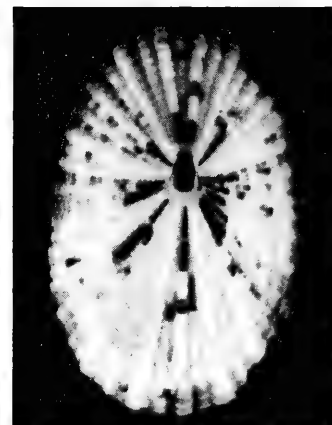
*Diodora aguayoi* Farfante, 1943. 17mm. 500', Saint James, Barbados.



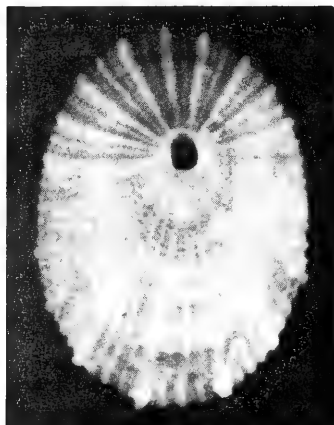
*Diodora arcuata* Sowerby, 1862. 18mm. 600', Florida Straits.



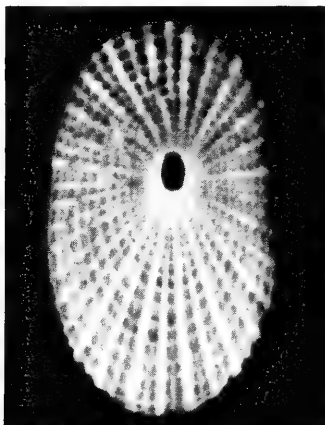
*Diodora cayenensis* (Lamarck, 1822). 28mm. 1-2', Plantation Key, Florida.



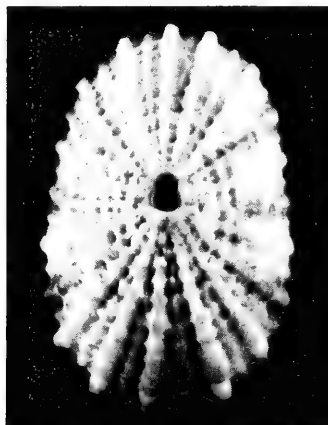
*Diodora dysoni* (Reeve, 1850). 22mm. Intertidal, Eleuthera, Bahamas.



*Diodora fluviana* Dall, 1889. 12mm. 450', off Plantation Key, Florida.



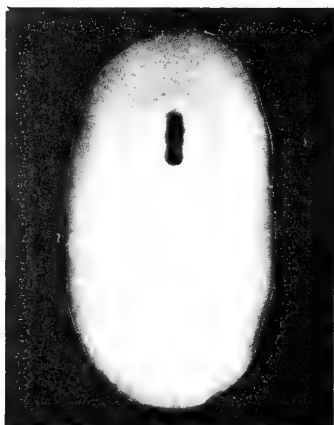
*Diodora jaumei* Aguayo & Rehder, 1936. 22mm. 1-2', Plantation Key, Florida.



*Diodora listeri* (Orbigny, 1842). 31mm. 10', Pickles Reef, off Key Largo, Florida.



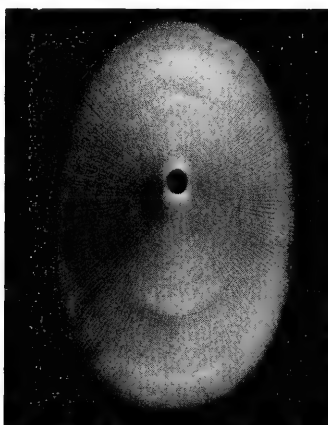
*Diodora minuta* (Lamarck, 1822). 12mm. 20', Pickles Reef, off Key Largo, Florida.



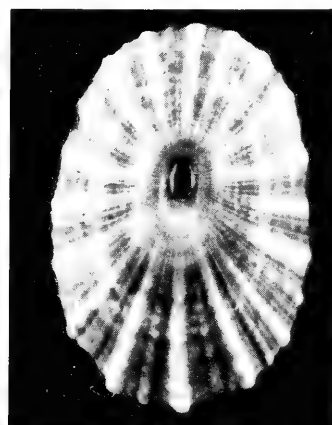
*Diodora minuta variegata* Sowerby, 1862. 11mm. 20', Pickles Reef, off Key Largo, Florida.



*Diodora sayi* (Dall, 1899). 19mm. 30 fms., off Palm Beach, Florida.

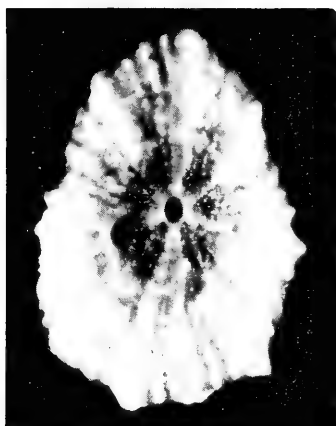


*Diodora tanneri* Verrill, 1883. 58mm. 170 fms., off Caribbean side of Yucatan.

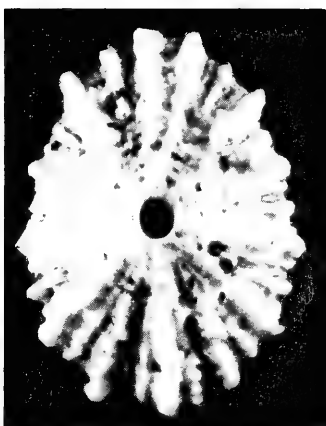


*Diodora viridula* (Lamarck, 1822). 14mm. 114 fms., off Tampa Bay, Florida.

The intent of these centerfolds is not necessarily to distinguish among valid and invalid species, but to provide illustrations of taxa not popularly available, for the information of the collector.



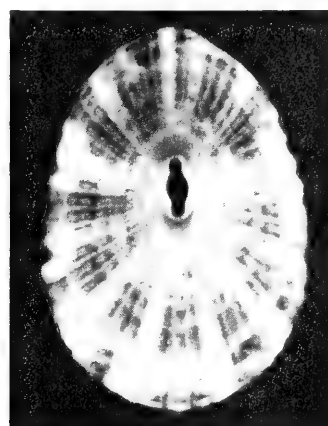
*Fissurella angusta* (Gmelin, 1791). 20mm. 20', Pickles Reef, off Key Largo, Florida.



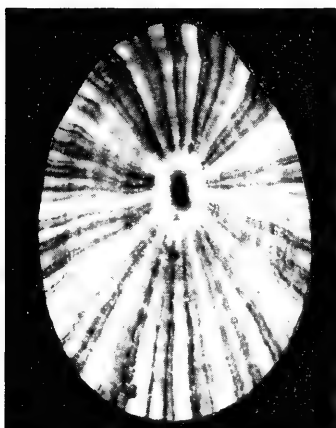
*Fissurella barbadensis* (Gmelin, 1791). 22mm. 1-2', Utila, Bay Islands, Honduras.



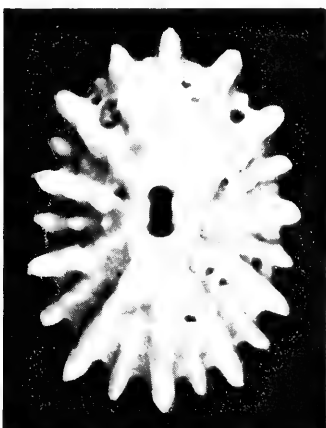
*Fissurella clenchi* Farfante, 1943. 17mm. 1-2', Rio de Janeiro State, Brazil.



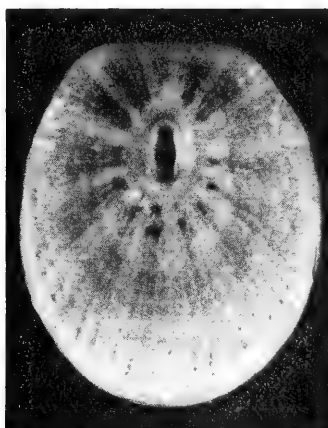
*Fissurella fascicularis* Lamarck, 1822. 14mm. Intertidal, Cay Sal, Bahamas.



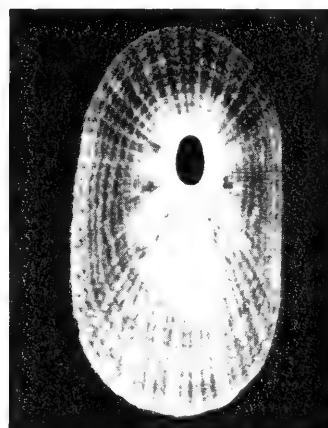
*Fissurella nimbose* (Linne, 1758). 31mm. Intertidal, Isla de Margarita, Venezuela.



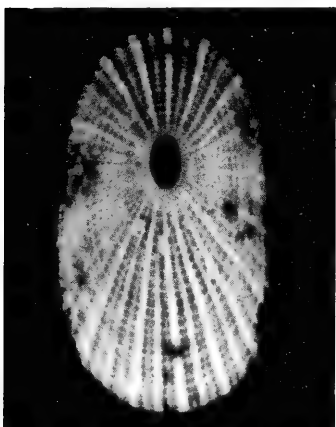
*Fissurella nodosa* (Born, 1778). 25mm. 1-2', Utila, Bay Islands, Honduras.



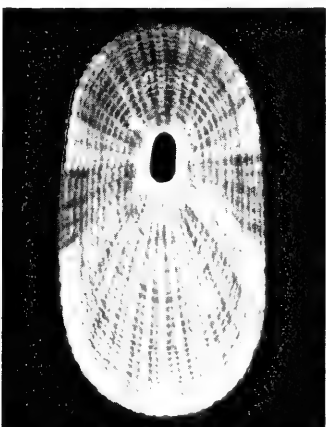
*Fissurella punctata* Fischer, 1857. 14mm. Intertidal, Elbow Cay, Bahamas.



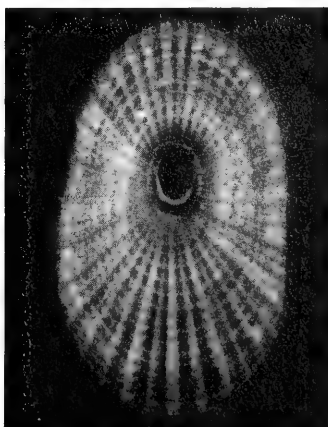
*Lucapina aegis* (Reeve, 1850). 18mm. 10-15', off Palm Beach Inlet, Florida.



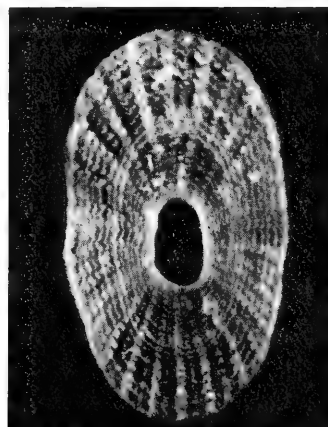
*Lucapina philippiana* (Finlay, 1930). 14mm. 15', Pickles Reef, off Key Largo, Florida.



*Lucapina sowerbyi* (Sowerby, 1835). 20mm. 10', Pelican Cay, Bahamas.



*Lucapina suffusa* (Reeve, 1850). 15mm. 20', Pickles Reef, off Key Largo, Florida.



*Lucapinella limatula* (Reeve, 1850). 12mm. 70 fms., off Bridgetown, Barbados.

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## MOLLUSCAN PALEONTOLOGY OF THE PLIOCENE-PLEISTOCENE LOWER SAUGUS FORMATION, SOUTHERN CALIFORNIA

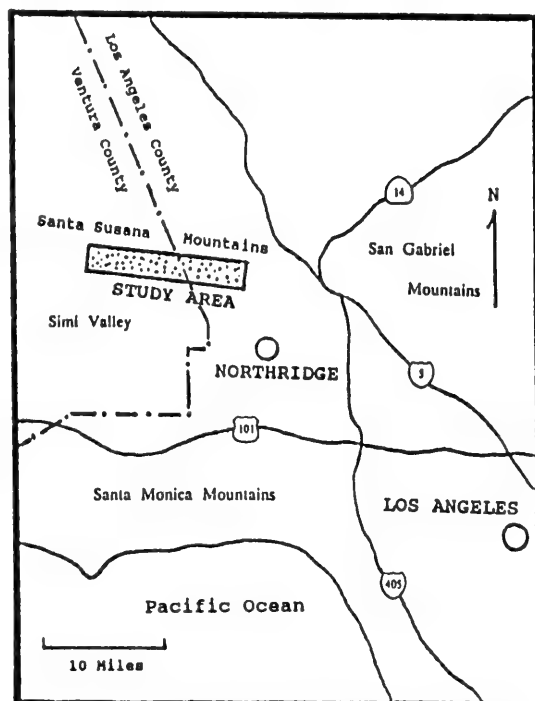
by Lindsey T. Groves

With the assistance of a generous COA research grant in 1987 to help with field and photographic expenses, I completed my Master of Science thesis in late 1990 at California State University, Northridge. In my work on the paleontology of the lower Saugus Formation, I completely documented a rich invertebrate fauna of Pliocene-Pleistocene age through illustrations and extensive synonymies. I also included sections on stratigraphy, paleoenvironment, paleobiogeography, geologic age, and correlation of the lower Saugus Formation to others of similar age in central and southern California.

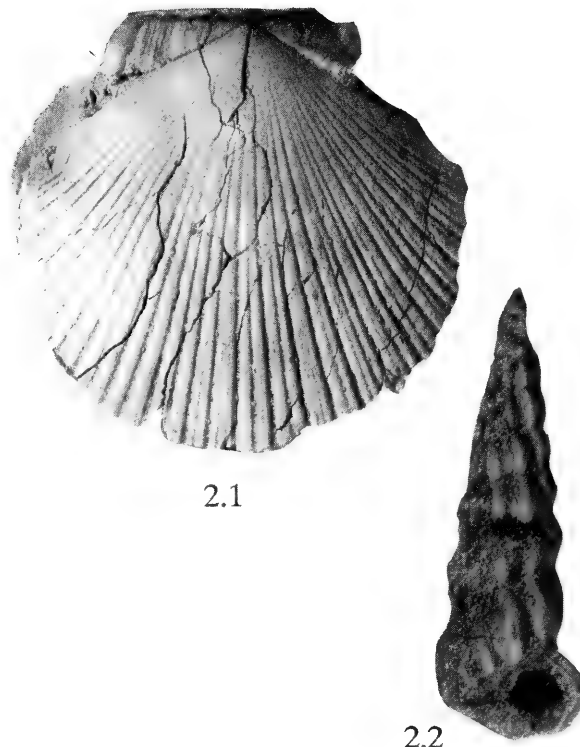
My study area was in the eastern Santa Susana Mountains in Los Angeles and Ventura Counties (Fig. 1). Because most of this area is on private property, permission from land owners was required prior to entry. The richest fossiliferous deposit of the lower Saugus Formation is located in Gillibrand Quarry north of Simi Valley, California. From this locality nearly 89% of the total number of fossil species were collected from a particularly rich horizon informally named the "Pecten bed" for the abundant specimens of *Patinopecten healeyi* (Arnold, 1906) and *Pecten (Pecten) bellus* (Conrad, 1857). This locality is interpreted to have been deposited as an embayed channel and may represent a faunal community. Because of excellent preservation displayed by many specimens, post-mortem transport was probably minimal.

Fossils of the lower Saugus Formation are predominantly molluscan and include 43 bivalve species, 49 gastropod species, and one scaphopod species (Table 1). Table 1 also indicates important terminal Pliocene index species and other extinct species. The commonest index species are *Patinopecten healeyi* (Fig. 2.1) and *Opalia varicostata* Stearns, 1875 (Fig. 2.2). Non-molluscan invertebrates included a sponge, bryozoans, brachiopods, crabs, barnacles, and echinoids.

Malacology Section, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007. Lindsey Groves is currently at work fulfilling a subsequent COA grant award on the fossil and Recent Cypraeaceans of the eastern Pacific region. We hope to read of this research as well within the coming year.



Location map of the study area in the eastern Santa Susana Mountains, Los Angeles and Ventura Counties, southern California.



Examples of lower Saugus Formation terminal Pliocene index fossils. 2. 1, *Patinopecten healeyi* (Arnold, 1906) from Gillibrand Quarry (CSUN loc. 725), exterior of right valve, x 0.5. 2.2, *Opalia varicostata* Stearns, 1875, from Las Lajas Canyon (CSUN loc. 1161), apertural view, x 0.9.

An analysis of latitude and paleobathymetry of this fauna revealed that most of the species live today at the same latitude as the study area (34° 18') between 20 and 30 meters depth. A logical interpretation would be that oceanic temperatures during lower Saugus Formation deposition were similar to those of today (12 to 18°C) with a normal salinity of 33 to 34 parts per thousand. A few species are geographically anomalous and several are bathymetrically anomalous. *Mya truncata* Linne, 1758 and *Lacuna carinata* Gould, 1849 live today north of 34° 18' N latitude, and *Miltha xantusi* (Dall, 1905), *Dosinia ponderosa* (Gray, 1838), *Cheilea cepacea* (Broderip, 1834), and *Calyptraea (Trochita) spirata* (Forbes, 1852) all live today significantly south of the study area latitude. Deep water species such as *Fusitriton oregonense* (Redfield, 1848) and *Neptunea tabulata* (Baird, 1863) are found in the same stratigraphic horizons with shallow water species such as *Littorina scutulata* Gould, 1849. These anomalous conditions indicate the probability of currents mixing adjacent warm — and cold-water habitats in the eastern Ventura Embayment during the Pliocene-Pleistocene, and probably account for the mixed assemblage.

The San Diego Formation, San Diego County, California, contains more Pliocene index species common to the lower Saugus Formation than to any other formation in California. The species in common are: *Lyropecten cerrosensis* (Gabb, 1866); *Patinopecten healeyi*; *Pycnodonte erici* (Hertlein, 1929); *Dendostrea vespertina* (Conrad, 1854); *Opalia varicostata*; *Musashia (Nipponomelon) oregonensis* (Dall, 1907); and *Terebra (Strioterebra) martini* English, 1914. Other forma-

tions of similar age in central and southern California are the San Joaquin Formation [Fresno and Kings Counties], the Careaga Formation [San Luis Obispo and Santa Barbara Counties], the Potato Harbor Formation [Santa Cruz Island], the basal Las Posas Formation [Ventura County], the Niguel Formation [Orange County], and an unnamed Pliocene section on San Clemente Island.

I am very grateful to my thesis committee members Dr. Richard L. Squires (California State University, Northridge), Dr. Jon R. Sloan (CSUN), and Dr. George L. Kennedy (Los Angeles County Museum of Natural History, Invertebrate Paleontology) for their encouragement and insight throughout the duration of this project. Special thanks to the Conchologists of America for their generosity in support of my research.

## TABLE 1. MOLLUSKS OF THE LOWER SAUGUS FORMATION

### BIVALVIA

*Acila (Truncacilia) castrensis* (Hinds, 1843)  
*Nuculana (Thestyloda) hamata* (Carpenter, 1864)  
*Nuculana (Saccella) taphria* Dall, 1896  
*Yoldia (Cnesterium) scissurata* (Dall, 1895)  
*Glycymeris (Axiola) profunda* (Dall, 1878)  
*Lithophaga (Diberus) plumula* (Hanley, 1844)  
*Modiolus capax* (Conrad, 1837)  
*Modiolus rectus* (Conrad, 1837)  
*\*Chlamys opuntia* (Dall, 1898)  
*Chlamys hastata hastata* (Sowerby, 1842)  
*Chlamys hastata hercicus* (Gould, 1850)  
*\*Lyropecten cerrosensis* (Gabb, 1866)  
*\*Swiftopecten parmeleei* (Dall, 1898)  
*Crassadoma gigantea* (Gray, 1825)  
*\*Pecten (Pecten) bellus* (Conrad, 1857)  
*\*\*Pecten (Pecten) lecontei* Arnold, 1906  
*\*Flabellipecten stearnsii* (Dall, 1878)  
*\*Patinopecten healeyii* (Arnold, 1906)  
*Pododesmus (Monia) macroschisma* (Deshayes, 1839)  
*\*\*Pycnodonte erici* (Hertlein, 1929)  
*\*\*Dendostrea vespertina* (Conrad, 1854)  
*\*Lopha veatchii* (Gabb, 1866)  
*Lucina (Lucinoma) acutilineata* (Conrad, 1849)  
*Lucina (Here) excavata* Carpenter, 1857  
*Miltha xantusi* (Dall, 1905)  
*Epilucina californica* (Conrad, 1837)  
*Chama arcana* Bernard, 1976  
*\*Cyclocardia occidentalis* (Conrad, 1855)  
*\*Eucrassatella lomitis* (Oldroyd, 1924)  
*Trachycardium (Dallocardium) quadragenarium* (Conrad, 1837)  
*Tresus nuttallii* (Conrad, 1837)  
*Solen sicarius* Gould, 1850  
*Leporimetis obesa* (Deshayes, 1855)  
*Macoma inquinata* (Deshayes, 1855)  
*Gari (Gobraeus) edentula* (Gabb, 1869)  
*Saxidomus nuttalli* Conrad, 1837  
*Dosinia ponderosa* (Gray, 1838)  
*\*Humularia perlaminosa* (Conrad, 1855)  
*Mya truncata* Linne, 1758

*Panopa abrupta* (Conrad, 1849)  
*Penitella penita* (Conrad, 1837)  
*Cyathodonta pedroana* Dall, 1915  
*Thracia (Homoeodesma) trapezoides* Conrad, 1849

### GASTROPODA

*Haliotis (Sulculus) rufescens* Swainson, 1822  
*Puncturella (Cranopsis) cucullata* (Gould, 1846)  
*Diodora arnoldi* McLean, 1966  
*Diodora aspera* (Rathke, 1833)  
*Astraea (Megastraea) undosa* (Wood, 1828)  
*Tegula (Chlorostoma) gallina* (Forbes, 1852)  
*Calliostoma annulata* (Lightfoot, 1786)  
*Calliostoma gemmulata* (Carpenter, 1864)  
*Bittium (Stylidium) quadrifiliatum* Carpenter, 1864  
*Turritella cooperi* Carpenter, 1864  
*Littorina scutulata* Gould, 1849  
*Lacuna carinata* Gould, 1849  
*Cheilea cepacea* (Broderip, 1834)  
*Calyptrea fastigata* Gould, 1846  
*\*Calyptrea filiosa* (Gabb, 1866)  
*Calyptrea (Trochita) spirata* (Forbes, 1852)  
*\*Crepidula princeps* Conrad, 1856  
*Neverita (Glossaulax) reclusiana* (Deshayes, 1839)  
*Sinum scopulosum* (Conrad, 1849)  
*Fusitriton oregonense* (Redfield, 1848)  
*Seila montereyensis* Bartsch, 1907  
*Nitidiscala tincta* (Carpenter, 1864)  
*\*\*Opalia varicostata* Stearns, 1875  
*Ocenebra beta* (Dall, 1919)  
*Ocenebra lurida* (Middendorff, 1848)  
*Forreria belcheri* (Hinds, 1844)  
*\*Calicantharus fortis* (Carpenter, 1866)  
*\*\*Calicantharus humerosus* (Gabb, 1869)  
*\*\*Calicantharus kettlemanensis* (Arnold, 1909)  
*Neptunea (Sulcosipho) tabulata* (Baird, 1863)  
*Nassarius (Caesia) perpinguis* (Hinds, 1844)  
*Mitrella carinata* (Hinds, 1844)  
*Mitrella tuberosa* (Carpenter, 1864)  
*Amphissa versicolor* Dall, 1871  
*\*\*Musashia (Nipponomelon) oregonensis* (Dall, 1907)  
*Olivella (Callianax) baetica* Carpenter, 1864  
*Olivella (Callianax) biplicata* (Sowerby, 1825)  
*Mitra (Atrimitra) idae* Melvill, 1893  
*Admete gracilior* (Carpenter, in Gabb, 1869)  
*Crockerella conradiana* (Gabb, 1866)  
*Agathotoma hexagona* (Gabb, 1865)  
*Clathromangelia variegata* (Carpenter, 1864)  
*Ophiidermella inermis* (Hinds, 1843)  
*Globidrilina hemphilli* (Stearns, 1871)  
*Conus (Chelyconus) californicus* Reeve, 1844  
*\*\*Terebra (Strioterebra) martini* English, 1914  
*Terebra (Strioterebra) pedroana* Dall, 1908  
*Turbonilla (Chemnitzia) muricatoides* Dall and Bartsch, 1907  
*Turbonilla (Mormula) ambusta* Dall and Bartsch, 1909  
*Bulla gouldiana* Pilsbry, 1895

### SCAPHOPODA

*Dentalium neohexagonum* Sharp and Pilsbry, 1897

\*\* = Extinct terminal Pliocene index fossil species  
 \* = Other extinct species

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### REPRINTS

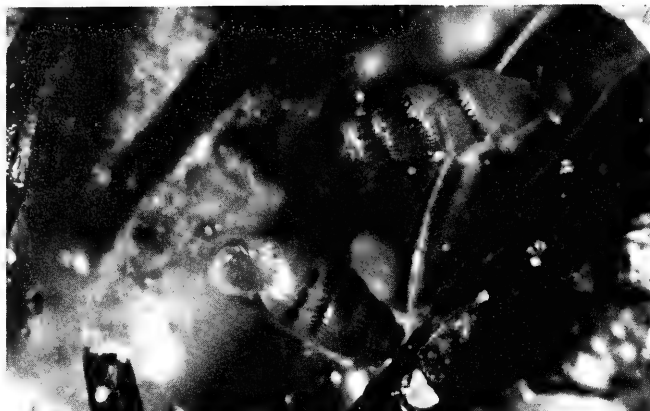
The Associazione Malacologica Internazionale and Carlo Settepassi's *Atlante Malacologico* are collaborating to re-issue a series of antique malacological texts. The three works currently being undertaken, in numbered copies with cloth binding and leather inset, are *Coquilles vivantes, Famille des enroulées* (Cones) by L.C. Kiener and P. Fischer, 1835, with 111 color plates, *Manuel de Conchyliologie et de Paleontologie conchyliologique* by Paul Fischer (1880-1887), and *On the Mollusca procured during the "Lightning" and Porcupine" Expeditions 1886-1870* by J. Gwyn Jeffreys. These high quality reproductions (as well as further information about them) are available by advance order from AMI, Casella Postale n. 45 — 00125 Acilia — Rome, ITALY.

### NEW COA GRANTS

1992 mollusk research grants, up to \$1,500.00 per applicant, are available to qualified persons undertaking recent or fossil laboratory or field research work. The deadline for applications is May 1, 1991. Mail to Dr. R. Tucker Abbott, Grants Chairman, Conchologists of America, P.O. Box 2255, Melbourne, FL 32905-2255. Applicants must outline the proposed project, amounts and purposes for which the award will be used, including requested supplies, expendable equipment, living and/or travel expenses, publication or illustration costs. Please submit a short biography, educational status or pertinent job experience, and a letter of recommendation from a scholastic or professional source. Awards are judged by the COA committee by June 1, and are made only to citizens or permanent residents of the Americas. They do not cover salaries, overhead, permanent equipment, or conference or meeting costs. If awarded, the recipient is expected to submit a popular written account of the project, suitable for publication in *American Conchologist*.

— R. Tucker Abbott

AMERICAN CONCHOLOGIST DOES NOT PUBLISH NEW SPECIES DESCRIPTIONS OR TYPE DESIGNATIONS



Tiny *Truncatella* thrive in the drift line high above the normal tide line. (Sarasota, Florida) (Peggy Williams photo)

## WHY THEY LIVE WHERE THEY LIVE

### Part V

by Peggy Williams

Mollusks come in an incredible variety of shapes, sizes, and colors, — and this is mostly by design. Shell characteristics are often adaptations to the environment and the struggle to survive, because mollusks, like all animals, must 1) find food, 2) protect themselves from predators, 3) survive within the limits and perils of their environment, and 4) avoid competition for available food and living space. The adaptation of shell and habit to satisfy these needs among mollusks is astonishing, and fascinating to study.

In the marine environment there is a great variety of available habitat — sand bottom, rock bottom (and in-between — shelly or rubble bottom), coral reef, algae on sand, algae-covered rock, and so on. There is deep water, middle depth, shallow water, intertidal areas and moist salt-air environment. There are variations in salinity and temperature. There is also open sea, seemingly bottomless, hostile and empty. Each habitat supports a different group of mollusks adapted especially to the limitations and possibilities of that singular niche.

#### Living on the Edge

Far up on the shore, above the reach of all but the highest of storm tides, is a drift line of long-dead algae. Within that drift line live tiny snails, the *Truncatellas*. There they are safe from many of the predators found in the water, but they have other problems instead. The dead grass beneath which they live provides moisture to keep their bodies from desiccation, and they have a tight-fitting operculum as well. They lack the buoyancy of water to help balance their shells, so when they outgrow the earliest parts (whorls) of their shells, they seal them off and allow them to break away, possibly re-using some of the shell material thus discarded. The resulting shell is truncated — hence their name.

Just above the reach of the tides live the *Littorinas* — the "Periwinkles." There are many different species in this group, and each one occupies a special niche. On the blades of the salt-marsh grass is the Salt Marsh Periwinkle, *Littorina irrorata*. Its geographical range is limited to the range of its preferred habitat, so it is not found south of central Florida, the southern limit of marsh grass. Its shell is heavy for the group since, in its exposed



*Littorina angulifera* likes mangroves for its home but may also be found on pilings and sea walls throughout its range. (Charlotte County, Florida) (Peggy Williams photo)



*Littorina ziczac* lives in colonies on ironshore. It is also found on pilings and sea walls. (Bay Islands, Honduras) (Peggy Williams photo)

position, it needs protection from crabs and birds. It prefers always to stay above the water, moving up the blades of grass at high tide and down to feed when the water is low.

*Littorina angulifera* and close relatives prefer to live on mangroves, so they are not found north of Florida where winters freeze off the tropical trees. The shell is thin, having limited minerals available, and smooth, to ease movement among the trees and to avoid having to use precious calcium in creating knobs and bumps. *Littorina littorea*, preferring colder water, lives to the north. *Littorina obtusata*, the Northern Yellow Periwinkle, lives in the intertidal zone on the yellow kelp of the north Atlantic shoreline, and is shaped and colored like the round bladders of its host. According to Abbott, it moves to deeper water to avoid shore ice. Generally, colder-climate littorinas have thicker shells than tropical species.

The Caribbean "ironshore" rock — rough-textured, gray ancient reefs — supports a variety of periwinkles. *Nodilittorina tuberculata*, the Prickly-Winkle, and *Tectarius muricatus*, the Beaded Periwinkle, are heavy-shelled to withstand the surf, knobby to resemble the rough rock, and gray to blend with the background. They are so well camouflaged that they are often missed by shellers. Each lives at a slightly different zone — one farther from the water than the next, each preferring the algae found at its own particular zone — thus avoiding competition for food and living space.

In the tidal pools of the ironshore rock are even more species. Tiny *Littorina mespillum*, Dwarf Brown Periwinkles, and *L. meleagris*, White-Spotted Periwinkles, live in great colonies and

\*Peggy Williams, a native Floridian, and a dedicated and unusually observant collector of all things molluscan, is the woman behind the scene at ShellElegant. P.O. Box 575, Tallevast, FL 34270.



The Salt-Marsh Periwinkle prefers to stay dry. (Sarasota, Florida) (Peggy Williams photo)

look like holes in the rocks. They prefer to remain submerged, even at low tide, so they congregate in depressions in the rock which retain water, then emerge at higher tides to feed.

Similar in situation and habit, but not so varied, are the Neritidae. Most of this family prefer the intertidal habitat and each has its niche within the intertidal zone, usually on ironshore rock. However, some live in shallow water, some in tidal pools, and others have adapted to brackish or even fresh water. The shells of *Neritina virginea* may be colored yellow, red, purple, black, green, gray, or any combination, with spots, bands, mottles, stripes — anything but a single solid color. Literally, no two are alike. Yet they are nearly invisible in the tide pools and intertidal algae beds where they live in huge concentrations.

Also found in the zone above or near high tide are a variety of limpets and chitons. Both groups have open-bottomed shells



*Cerithidea scalariformis*, the Ladder Horn Shell, likes muddy areas near mangrove roots where it can escape the advance of the tide. (Charlotte County, Florida) (Peggy Williams photo)

that make it important for them to hold their bodies close to the rock for protection from predation and desiccation. Both hollow out depressions in the rock as a "home" during low tide and move about to feed in a small home territory during high water. With their radular teeth they scrape algae off the rocks, often leaving trails of scratches. Chitons have eight plates of shell, loosely held together with a fleshy girdle; the plates move independently to allow the animals to curve and conform to any surface contour. They can even curl into a tight ball when dislodged.

All marine environments are at once hostile and friendly to life. The mollusks living on the edge have adapted in many unique ways to the limitations and advantages of their habitat.

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### DUCK THOSE FLYING DOSINIAS!

We have it from our esteemed President, Glen Deuel, (who is also, coincidentally the editor of the North Alabama Shell Club *Nautiloid*) who got it from a recent Associated Press article from the Cape May New Jersey area, who presumably got it from the Mercenaria's mouth, so to speak, that there really is an International Clam Pitching Club. (John Timmerman introduced us to one aspect of the sport back in the June 1989 *American Conchologist*\*; we had no idea the thing had spread so far!)

But don't be surprised, Our President says, because people who have never seen a horse might think it odd that we have a National Horseshoe Pitching Club. Instead of heaving horseshoes at a stake, the Clam Pitchers chuck quahogs at a 5-inch hole 25 1/2 feet away.

But alas! Seems the destructive effect of progress on the molluscan population has touched the clam pitchers as well as us clam catchers; the main source of clam shells is being covered up by beach replenishing projects. Clam shells in the Cape May vicinity are becoming so scarce that plastic shells were pressed into use for practice for the 46th Annual Tournament.

\*Airborne Mollusks: The Case of the Funny-shaped Frisbees, or Clam Flying Introduced and Explained, *American Conchologist*, Vol 17(2):8-9.

**COA PRESIDENT GLEN DEUEL** has appointed a Special Committee for the Revision of the Constitution and Bylaws. This committee consists of Doris Underwood, COA Vice-President, Linda Koestel, COA Trustee, and John Baker, 1990-91 Nominating Committee Chairman.

### BEST OF THE BEST!

Publications Chairman Rich Goldberg is hard at work on the publishing details of the COA History, compiled and written last year by COA Historian Lucy Clampit. Target Publication Date: July 1992. Rich now needs snapshots of the early days of COA and asks that longtime members shuffle through their old photos for that really special shot. Slides, negatives, black and whites, or color prints — any form will do, but Rich asks that they be the "best of the best," illustrating key people, places and events in COA's history. All photos used will be acknowledged in the publication, and all photos will be returned. Send your contributions soon to Rich at P.O. Box 137, Fresh Meadows, NY 11365.

### TRICK OR SHELLS?

Last year I sent you a little blurb about giving shells instead of candy for Halloween. This year we gave the trick-or-treaters their choice and 9 out of about 50 chose the shells. In addition we added a slip of paper to each shell with instructions that the first to properly identify the shell by Latin name and return would receive an additional prize — five dollars for the first one to return and an additional and better shell for all others. We had about eight return with names, and about half with the right name. One little girl who took candy later came back and traded for a shell instead. Seemed to be a great success and we plan on doing the same again next year.

Pinky Pinkerton  
1324 Westmoreland Drive  
Warrenton, VA 22186

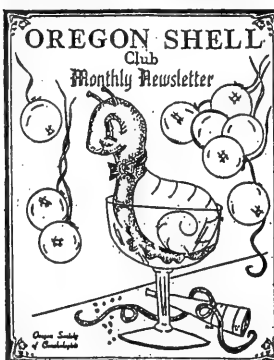
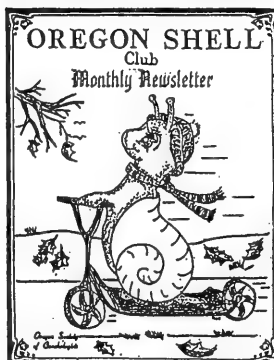
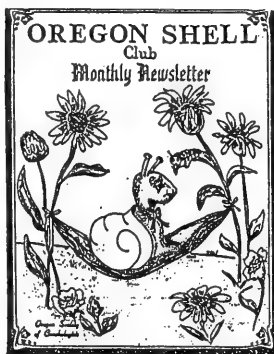




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## OUR COA CLUBS — A CLOSER LOOK The Oregon Society of Conchologists

by Nancy Gilfillan



On May 31, 1865 the *Oregonian* carried a notice that "the Oregon Museum on Front Street is displaying Joseph Buchtell's fine collection of shells." This could well be a reference to Oregon's first conchologist.

The second most prominent collector was John Malone, whose collection was donated to the Oregon Museum of Science and Industry (OMSI) where, except for a dozen or more shells put on display, the large collection was stored in a back room due to lack of space.

Probably the first person to notice Oregon's lack of interest in shell collecting was Steven McCluskey who, in 1964, moved from Hawaii to Portland. He had collected shells since he was ten and had enjoyed the wealth Honolulu offered to both amateur and professional conchologists. The most Portland had to offer was a single glass-topped case from the Malone collection at the Museum.

Steve suggested to OMSI that they let him arrange a more extensive and educational exhibit. The Museum agreed and designated March, 1965 for display time. Eighteen cases went on display, showing specimens of all the important genera.

There was an upsurge of interest in shell collecting, and many visitors wanted an organization to foster knowledge about shells. So in June, 1965, the Oregon shell club was born. In the spring of 1966, they put on a second shell show at OMSI, larger than the first, which brought an even greater interest in shells and the club.

Today the club boasts about 100 members, and their annual judged shell show (this is their 27th) runs two weeks or more at the museum. If there is a trophy for longevity in shell shows, the Oregon Society of Conchologists surely must be one of the top contenders!

The club worked for years to get a state shell. Finally, the members succeeded in appearing before the State Legislature with their choice, *Fusitriton oregonensis* (Redfield, 1848), the Oregon Triton, picked because it came from deep water in Oregon, so it could not be over-collected; moreover, it was named for the Territory of Oregon, not the State (Redfield named this shell in 1848; Oregon would not become a state until 1859). Examples of this shell were shown to the Legislature members,

who expressed interest, especially in what its periostracum was for. On June 26, 1989, *Fusitriton oregonensis* became the State Shell of Oregon (it was already the logo of the Oregon Society of Conchologists and is on their club pin).

The club meets in members' homes the first Sunday of the month. Their newsletter, *Oregon Shell News*, is published 11 times a year and sports on its covers beautifully drawn and colored "adventures" of a little snail through the changing seasons. To join the club, send \$10.00 for the first family member and \$2.00 for each additional member to Jeannie Baird, 10735 SW Wakefield Street, Portland, Oregon, 97225.

This is an active club that enjoys coastal field and dive trips. It is geographically somewhat isolated (no other shell clubs are near). You will be warmly welcomed, whether there is a meeting or not.

\*9933 Edward Avenue, Bethesda, MD 20814

## OOPS:

### Compliments and Corrections

Dear Editor,

I have just received the September issue of *American Conchologist* with the beautiful color cover showing the olives from Chenu's illustrations. I liked this so much that I have framed it for display in my office. The color of the olives as well as the color of the *Conus cedonulli* and *Conus jucundus* are superb.

However, I noticed that the photograph captions for Peggy Williams' article on page 3 are mixed up. The photo on the left is *Euglandina rosea*, the center photo is *Liguus fasciatus roseatus* and the photo on the right is *Janthina janthina*.

On page 6, in "The Reef Cones of Bimini," figure 1 shows the Bimini specimens of *conus jucundus*, *Conus arangoi*, and *Conus inconstans*. Figure 2 shows the live specimens of *Conus jucundus*, *Conus arangoi*, and *Conus inconstans* while figure 3 shows the low spired Bimini form and high spired Grand Bahama form of *Conus jucundus* from Grand Bahama Island. This was what gave me the clue since when I read Wayne Harland's account of the cones from Grand Bahama Island I compared them to the cones I collected from the West End back in 1976 and I could not match them until I realized the picture captions were mixed up. I am sure Mr. Harland will agree.

Regardless, I have enjoyed this entire issue of the magazine and relived the memory of finding these beautiful cones. Keep up the good work, especially those magnificent color photos.

Sincerely,

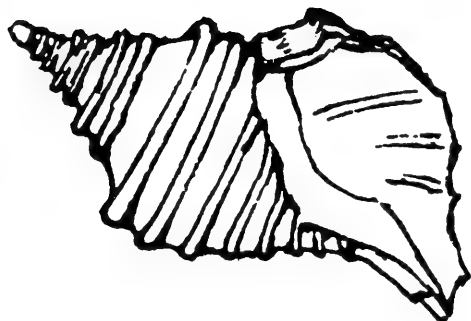
J. M. Inchaustegui

P.O. Box 23384

Harahan, LA 70183

*Our profound apologies to both Peggy Williams and Wayne Harland. And our thanks to Mr. Inchaustegui. . . he's explained our error so clearly and kindly, all veiled in compliments, that we feel much better about The Editor's Nightmare . . . switched captions. These captions begin the printing process in the correct position. . . certainly the authors know the correct identity of their photos. . . but somewhere in the lengthy process of pasting and proofs and corrections to proofs, these captions or the photos themselves can get switched, in this case in the final stage of the process.*

In Kevan Sunderland's September centerfold, *Ficus atlantica* and *Ficus howelli* were collected in Barbados, not in Bermuda.



## NAME THIS MYSTERY SHELL!

If you said "the COA Logo Shell," you had the only right answer. And if you're now grabbing a pen and paper to tell us that we're wrong, just read on. We know you think it is *Neptunea lyrata decemcostata* (Say, 1826), the Ten Ridged Whelk from the western Atlantic off Nova Scotia to off North Carolina. It looks a lot like that shell. It also looks a lot like *Neptunea lyrata lyrata* (Gmelin, 1791) from the Arctic Ocean to off northern California. And like *Neptunea despecta* (Linné, 1758) from northern Europe to Maine. And like another whelk from Japan. But it's none of the above. Or all of them. That is, in fact what it is . . . all of them, a representative uni-Neptune, or as Rich Goldberg put it, back in the March 1981 issue of the **COA Bulletin**, *Neptunea sp. (non-descriptus?)*.

For the historians among you, here's the tale:

The original logo shell was a *Strombus gigas*, designed by President Betty Rachlin's husband, but it never appeared on a **COA Bulletin**. Because so many other groups were using this shell, it was decided to create a new logo.

Richard Sedlak designed the prototype of the shell you see today (although somehow Gary Magnotte was credited with the design). It is assumed that the *Neptunea* was originally selected because of its association with Rhode Island, the home of COA founder John Paduano and site of the first COA convention. But Richard deliberately created a loosely defined *Neptunea*, so that it would have no specific geographical associations.

The Logo Shell first appeared on the masthead of **COA Bulletin** #6, back in 1975, when Frank J. Nelson was editor. Issues 6 through 9 featured the familiar ridged shell in the upper right hand corner of the front page. Tom Rice took over the editorship from Frank Nelson in 1977 and the Logo Shell dropped from view until June 1979 when Rich Goldberg became editor. Rich put it back on page one in a redesigned format: his brother Marc created a new logo, (the familiar one we use today) with the *Neptunea* inside a big letter C. There it remained until editors Charlie Glass and Bob Foster revamped the magazine in 1983 and moved the masthead, with logo and little *Neptunea*, to its current position on page two.

Rich Goldberg created a minor archival furor when he made the assumption most of our members make and did a small piece on the COA Logo Shell, *Neptunea decemcostata*, in the December, 1980 **COA Bulletin**. Quick response from some early and charter members, including Kirk Anders, put him straight, and also identified Richard Sedlak as the original artist.

## BOARDTALK. . .

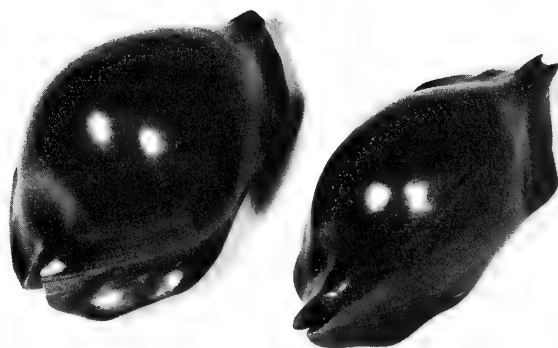
From **Membership Chairman BOBBIE HOUCHIN**: Just want you all to know COA appreciates your interest in COA activities and its publication, **American Conchologist**. Many members, club reps, shell dealers and others at the convention bourse, shell show chairpersons, and board members are making an effort to maintain and increase our membership. By chance, I heard that John Baker, Club Representative for Astronaut Trail Shell Club of Brevard County, Florida, is having a contest to recruit new members for COA. That's just great! To all of you who are working to increase COA membership, keep up the good work. Your efforts keep me busy (and out of trouble, I hope).

We have had great conventions. As recently as July the Long Island Shell Club hosted a fine convention and we are looking forward to Jacksonville Shell Club hosting the 1992 convention.

Did everybody solve the puzzles in the September 1991 issue? If you didn't, here's a clue: they were all reminding you to pay your 1992 dues. Do it now while you are thinking about it. Walter Sage, Treasurer, says the quicker the better before January. Send changes of address as soon as possible. Thanks and a Happy Holiday to ALL!

From **Treasurer WALTER SAGE**. As you'll remember reading in the September issue, we're now accepting membership renewals for 1992. I'm very pleased to report that as of November 2, I've received approximately 500 dues payments for 1992, plus a half dozen late renewals for 1991. We fully expect to have half our memberships renewed for 1992 by early December. That fact speaks highly of the coordinated efforts of COA officers and members. We ask those who have not yet paid for 1992 by the date they receive this December issue to please help us out and send your payment as quickly as possible — prompt payment helps us all, and ensures that we will have the necessary funds on hand to provide these issues of **American Conchologist** that members look forward to each quarter.

We do have 28 1991 Sue Stephens COA t-shirts left as follows: Medium — 2 Blue, 2 Green, 2 Gray. X-Large — 6 Coral, 9 Green, 5 Peach, both sizes at \$10.00 postage paid. XX-Large — 1 Blue, 1 Gray at \$11.00 postage paid. We also have 26 embroidered COA patches left. They are Sea Blue with Gold lettering and a White COA logo shell, and cost \$4.00 each, postage paid. Why don't you send your order for these items along with your 1992 membership renewal check? Mail both to me, P.O. Box 8105, Saddle Brook, NJ 07662.



Fabulous melanistic cowries from New Caledonia? No, beautiful fakes from North Carolina. John Timmerman carved both these gem specimens of *Cypraea rosselli* from — what else? — ebony, of course.

## REVIEWS:

**European Seashells, Volume I (Polyplacophora, Caudofoveata, Solenogaster, Gastropoda)** by Guido T. Poppe & Yoshishiro Goto. 1991. Verlag Christa Hemmen, Grillparzerstr. 22, D-6200, Wiesbaden, Federal Republic of Germany. 352pp., 7" x 10", 40 color plates, 1 b/w plate, 29 text figs., hard cover. \$55.00

Western Man has probably been picking up shells on the shores of the Mediterranean Sea for ten thousand years. Home territory of Linnaeus, Gmelin, Roding and a host of other malacological great names, Europe is the "cradle of shell collecting" as we know it. How ironic then, that, in the 20th Century, European shell literature has been somewhat of a wasteland for the collector. Until now, that is. Guido T. Poppe and Yoshishiro Goto have taken the first step toward filling that gap with Volume I of their new **European Seashells**. Now, instead of inadequate regional guides or highly technical professional literature, the reader can turn to an extensive coverage of some 1,800 species of non-bivalve European marine mollusks, and of a region that extends from the Barentz Sea to the European coasts of the Mediterranean, and from the Canary Islands in the Atlantic to the Black Sea.

The authors are seasoned collectors of the fauna of this region, and students of the literature, and they bring much experience to the task of writing this book. But **European Seashells** is not a scientific work, or a taxonomic revision. It does not illustrate type specimens. It is, instead, a specialized tool for the collector — primarily a very elaborate systematic checklist, generously illustrated and attractively arranged, embellished by numerous aids to the user. The information contained is a synthesis of available literature, up to mid-1989.

Following a Foreword by Dr. Yves Finet of the Museum d'Histoire naturelle, Geneva, Switzerland, an Introduction, Methods and Acknowledgements, is the rapidly-becoming-standard primer on malacology, taxonomy and the collection, complete with shell diagrams labelling shell parts and illustrating terminology. Always helpful to the beginner, this section has much to offer the rest of us too — no matter how much we think we know, a fresh approach can always teach us something, and reading this section gives us insights into the methods and philosophies of the authors. The section, "Systematics, Taxonomy and Nomenclature," is particularly good. This reviewer wishes that the English translation from the original French had received closer reading before publication — a few spots are rather obscure — but we are very grateful to have the English.

A complete "Systemic Arrangement" lists all 1,800 species covered in the checklist, with the extensively discussed species marked in bold face. Author and date are also given here.

The body of the book, the checklist, follows, beginning with the Polyplacophora. Notes, and references to the extensive Bibliography introduce each class, family and, sometimes, genus. Using the bibliography, the student can locate references on any subject of interest, in order to satisfy his needs or curiosity. Around 460 species are treated in an extended discussion including dimensions, range and habitat, description (beyond the obviously visible features illustrated in the plates), comparison, variation, synonymy, notes and color plate location. Over 1,300 more species are listed with author and date, locality, and a reference to a publication where they have been figured.

The 40 color plates follow. Nearly 1000 specimens, mostly

from the collections of Yoshishiro Goto, are illustrated on a pale gray background. The photographs are almost uniformly clear and accurate as to color, and large enough to distinguish detail. In some cases the pale gray background does less than justice to white or pale shells, but no single color would do justice to all species (although this reactionary reviewer prefers black); the gray is an attractive compromise. Captions are on facing pages.

Following a very extensive bibliography is an extremely useful three-column index, with dual listings by species and genus making location of a shell name doubly easy with a minimum of page turning. Plate locations are in italics.

Succeeding admirably at that which they set out to do, the authors are to be congratulated. This book is so badly needed, so full of information and so easy to use that it is sure to find a place on the bookshelves of every serious general collector, as well as those of the specialist in Mediterranean and European mollusks. We can only hope it will be followed soon by a companion volume on the ever-neglected bivalves.

— L. S.

**The Mitridae of the World, Part 2. The Subfamily Mitridae Concluded and Subfamilies Imbricariinae and Cyldromitridae** by Walter O. Cernohorsky. 1991. *Monographs of Marine Mollusca*, No. 4. 164p. 4 color, 144 b/w plates. \$35.00.

In this continuation of his systematic review of the Mitridae initiated in 1976, Cernohorsky includes 42 fossil and 97 living species and subspecies of living world-wide miters from the 3 subfamilies listed in the title of the paper. These subfamilies are distinguished by radular differences, as well as shape, sculpture, and ornamentation. In concluding his treatment of the Mitridae, the author covers seven living taxa of *Mitridae*, nine of *Nebularia*, and one of *Dibaphimitra*. The genus *Pleioptygma* is removed from Mitridae and placed in the family Pleioptygmatidae, in accord with recently published research.

The subfamily Imbricariinae is comprised of the following genera: *Cancilla*, with 5 species; *Ziba*, 13 species; "*Ziba*," 16 species; *Subcancilla*, 1 species; *Domipora*, 10 species; *Neocancilla*, 8 species; *Scabricola*, 10 species; its subgenus *Swainsonia*, 6 species; and *Imbricaria*, 6 species. Finally, the 10 species of *Pterygia* included in the subfamily Cyldromitridae are covered.

The treatment of each recognized taxon consists of scientific name with author and date of description; plate on which the taxon is illustrated; range, with a map; remarks, in which comparison is made with other species; habitat, description; measurements; synonymy; types and nomenclature; and locality records from museum and private collections. Junior synonyms are noted and type specimens are illustrated.

This monograph is a high quality presentation of the available data on the family Mitridae, and will prove of great use to professional and amateur malacologists. Used with the first part, it will facilitate identification of miters, and the task of organizing a collection of Mitridae should be simplified. It is hoped that someone will carry on Cernohorsky's work and provide the same treatment for the Costellariidae, so similar in some shell characters to Mitridae, but distinct in radular and anatomical characters. Cernohorsky can be congratulated on the completion of his excellent work on the Mitridae.

— Walter Sage

**DON'T MISS THE SPECIAL COLOR ISSUE IN MARCH. PAY YOUR 1992 COA DUES TODAY!**

**A Systemic Classification of the Gastropod Family Conidae at the Generic Level** by A. J. da Motta. 1991. *La Conchiglia*, Rome, 48p., numerous color photos; text in English and French. \$35.00 soft cover, \$48.00 hard cover (plus postage).

The marine mollusk family Conidae has long been a favorite of shell collectors and scientists alike. Since the genus *Conus* was established by Linnaeus in 1758, there has been a continuing debate over the merits of recognizing the single genus or dividing that taxon into a "more natural" arrangement of several genera. Walls, in his 1979 revision of the species of Conidae, chose to use only the genus *Conus*. In the dozen years following publication of that book, nearly 250 new species and subspecies names have been introduced into the literature. A. J. (Bob) da Motta, in the forefront of those describing new cone taxa, has now given us his ideas on the proper arrangement of species-level taxa within 8 genera and 68 subgenera.

Da Motta devotes several pages to the history of conid classification, stating that "a genus is a group of species holding several features in common." Touching on such features as radula, protoconch, and early whorl microsculpture, da Motta then comments that none of the various biological and morphological features can alone "accommodate the entire family simultaneously." He states that an effective system of classification must link fossil and living species and that therefore "structural shapes of individual conid species as outlined in its profile" are the key element of a usable classification of the Conidae.

Body whorl contour is the structural aspect used by the author to recognize eight distinct genera. These genera, with respective type species and body whorl shape, are: *Conus marmoreus*, obconic; *Leptoconus amadis*, turbinate; *Dendroconus betulinus*, turgid; *Hermes nussatella*, cylindrical; *Profundiconus profundorum*, fusiform; *Gastridium geographus*, bulbous; *Conasprella cancellata*, pyriform; *Cylinder textile*, ovate. All of these basic shapes are illustrated, and for each recognized subgenus, an outline of the basic shape is provided. Several other factors determine placement of a subgenus within a genus — "some modification in height of spire; structure of the shoulders; the sides; the size bracket and pattern or coloration." Further criteria for distinguishing subgenera are these: "any distinct group which is endemic to a particular zoogeographical area; monotypic singularity; any group of look-alike species already recognized as belonging to a self-evident complex; consistent and unique coloration and pattern only seen in one particular complex." Sizes are defined thus: small, up to 30mm; medium, up to 70mm; large, over 70mm.

The actual classification covers 26 pages, in which each of the 68 genus-level taxa are treated in the following manner: author, date and type species designation are provided; several lines of diagnosis are given; and a list of species-level names that conform to the diagnosis is included. A color photo of the type species and a contour outline to emphasize shell shape complete this treatment. The genus-level taxa are here summarized —

*Conus*, with 16 subgenera, 9 new in this paper; *Leptoconus*, 13 subgenera, 8 new; *Dendroconus*, 17 subgenera, 8 new; *Hermes*,

9 subgenera, 3 new; *Profundiconus*, 4 subgenera, 1 new; *Gastridium*, 2 subgenera; *Conasprella*, 4 subgenera, 1 new, and *Cylinder*, 3 subgenera.

Two indices, one giving genera, subgenera, an abbreviation, and the type species; and the other a listing of some 1200 species-level cone names and the abbreviations by which these names may be located in the classification pages, complete this book. In the second index, species considered by the author to be valid are printed in bold type, so the reader can easily tell the author's opinion of a particular name.

This reviewer has a few final comments. There is no statement of the derivation of the names of the new subgenera. No fossil species are included at this time, so the reader can only speculate about fossil names. I find the book difficult to use, but this may be due in part to unfamiliarity with the new subgenus names. It is necessary constantly to flip back and forth in the book, and already the covers of my copy are coming loose. I have trouble accepting the above-stated subgenus criteria as objective — they seem too easily open to individual interpretation. And lastly, it seems to me too restrictive to rely only on shell shape as the determining factor for the proper classification of the Conidae. This classification can be another tool for the worker, but we need to know more before closing the door on the question of genera of Conidae.

— Walter Sage

**Additions to the Panamic Province Bivalve (Mollusca)**

**Literature — 1971 to 1990** by Carol Skoglund.

1991. Supplement 2 (1990) to Volume 22, *The Festivus*. pp. v + 74, 8 1/2" x 11" softcover format. \$10.00 plus postage. Send orders to The San Diego Shell Club, 3883 Mt. Blackburn Avenue, San Diego, CA 92111.

Carol Skoglund, one of the most knowledgeable collectors specializing in Panamic province mollusks, has earlier provided similar updates to Polyplacophora and Opisthobranchia. She now shares with us the results of her years of compiling the numerous literature citations on Panamic bivalves that have appeared since Keen's monumental 1971 treatise, *Sea Shells of Tropical West America*. As stated in her first paragraph, "The purpose of this paper is to draw together as many bivalve citations as possible and tie them to the fauna at the species level so that each reader can make his/her own final judgments." The compiler has critically reviewed each citation, consulted with specialists as necessary, and given us a work that can be used with confidence to accomplish her written purpose.

The paper begins with a 5-page table of contents listing the supraspecific taxa and the page on which the treatment of each genus begins. The numbers from Keen's 1971 book have been retained, but will be out of order in cases where a new arrangement has been proposed in the literature. Only species with changes since 1971 are included, and species are listed alphabetically within a genus. Taxa that have been revised since 1971 are in bold type, and the synonymy is as listed by the revisers; and where differences of opinion exist, both versions are listed in the order in which they were published.

The bulk of this paper, some 55 pages, is devoted to the systematic classification, which certainly appears to be excellently done and eminently usable. The list of literature consulted covers seven pages, and the final eleven pages are an index to the scientific names, from subspecies to subclass. The reader is therefore afforded every opportunity to become familiar with recent changes in the bivalves of the Panamic province and to learn the latest in bivalve systematics. This inexpensive volume is certain to be of first importance to collectors and professional malacologists alike.

— Walter Sage

**BIVALVE BOOK COMPLETED**

We hear that Kevin Lamprell and Thora Whitehead's new book, *Bilvalves of Australia, Volume I* is in the order-taking stage. This is a first — a popular book wholly on the Bivalvia (unless you count Kevin's one-family book on the Spondylidae a few years ago) and it is sure to be a hit. These two hard-working and very knowledgeable amateurs are making quite a mark on the conchological literature of Australia.



**Living Shells of the Caribbean and Florida Keys** by Robert E. Lipe and R. Tucker Abbott. 1991. *American Malacologists, Inc., Melbourne, Florida*. 80pp., 6" x 9", many color photos. \$8.95.

Now in its 6th printing with over half a million copies sold, the junior author's **Collectible Florida Shells** has proven to be a most popular and basic guide to the marine shells of Florida and the Caribbean. For this new book, Abbott has joined forces with Bob Lipe, veteran collector, shell dealer, and noted photographer of living mollusks, to produce an expanded volume that accentuates the beauty of the live animal while continuing to provide excellent and expanded coverage of Florida mollusks.

Approximately 300 species are illustrated in full color — *Pterynotus phyllopterus*, *P. lightbourni*, and several marginellas are new to this volume — and common and scientific names with author and date of description, size and capsule commentary are given for each species. Seventy photos of live mollusks have been added to showcase the beauty and variability of the animals which make the shells we all love. The photos are clear and crisp, and those of the living animals are especially noteworthy, as very few of these live mollusks have been illustrated in any popular books.

Among the living mollusks pictured (just to whet your appetite) are *Morum oniscus*, *Cymatium pileare*, *C. caribbaeum*, *Ficus howelli*, *Bursa thomae*, *Scaphella junonia*, *Lyria cordis*, *Voluta musica*, *Teralatirus ernesti*, *Conus granulatus*, *C. cedonulli*, *Cypraea spurca acicularis*, ten species of marginellas, *Natica canrena*, *Xenophora conchyliophora*, *Turbo caillietii*, and *Vexillum histrio*. These photos alone make this book a must for all collectors interested in western Atlantic marine mollusks. We can give the authors a resounding vote of thanks for publishing such a fine addition to the literature.

— Walter Sage

#### 1992 NOMINATING COMMITTEE ANNOUNCED

The Nominating Committee for the next election to be held at the 1991 COA Convention has been appointed by President Glen Deuel. The members are:

Richard Forbush, Chairman, 1104 Sklar Drive E., Venice, FL 34293

Al Chadwick, 2607 Turner Road, Wilmington, DE 29803

Charles Roe, 105 Markham Place, Portland, TX 78374

If you have any suggestions for the committee, please submit them in writing to any of the above members.

**The Northeast Florida Species List**, an ongoing project of the Gulf Coast Shell Club, has been updated to August 1991. It contains species of shells found in the onshore and offshore waters of the Florida Panhandle, arranged alphabetically by family, with reference numbers from Tucker Abbott's *American Seashells, Second Edition*. The list now contains 481 species (the first of these lists was just 90 names long!) and should be very useful during the summer of 1993, when the COA Convention, hosted by that same Gulf Coast Shell Club, meets in Panama City.

**DID YOU REMEMBER TO PAY YOUR 1992 COA DUES?**

#### Paris In January, The Place To Be!

It isn't exactly Paris in the Spring, but then you won't be able to indulge your shell-collecting urge in the Spring either:

The Ile-de-France Branch of the **Association Française de Conchyliologie** invites you to its **4th Rencontres Internationales du Coquillage** (International Shell Meetings), on Saturday the 25th and Sunday the 26th of January, 1992, which will take place in the City Hall of Vincennes (adjacent to Paris), 53 Bis Rue de Fontenay, 94300 Vincennes, from 9:00 a.m. to 12:30 p.m., and from 2:00 p.m. to 6:00 p.m. Price of the tables: F. F. per meter. Sandwiches and bar available. For information, please contact A. F. C., 1, Impasse Guéménée, 75004 Paris FRANCE. (Tel. 40-27-96-72), or Gilbert Jaux, 3 Rue Saint-Honore, 78000 Versailles FRANCE (Tel. 39-53-80-46)

#### But If You Can't Go To Paris:

Our Trophy Chairman, Donald Dan, has prepared his usual exhaustive list of the Spring and Summer Shell Shows for you, and I'll have to confess, *Florida in January (or February or March) sounds like a pretty good second choice! And please note that the date for the Treasure Coast Shell Show is the third weekend in March, not the second as has been published elsewhere.*

#### 1992 WINTER & SPRING SHELL SHOWS & OTHER EVENTS

A total of 14 shell shows have been slated during this period, 12 in the U.S. and 2 in Europe. The biennial St. Louis show will again be held in 1992. The Ft. Myers show will resume after two years' absence, returning to the old Exhibition Hall along the bank of the Caloosahatchee River. Absent during this season will be the Central Florida Shell Show and the Palm Beach Shell Show. Both shows are searching for more suitable locations.

- |            |  |
|------------|--|
| Jan. 17-19 | <b>Greater Miami Shell Show</b> , N. Miami, FL<br>Sandra Gayle Motes, 7305 N.W. 59 Street<br>Tamarac, FL 33321 ..... (305) 726-5190  |
| Jan. 24-26 | <b>Astronaut Trail Shell Show</b> , Melbourne, FL<br>Jim & Bobbi Cordy, 385 Needle Blvd.<br>Merritt Is., FL 32953 ..... (407) 452-5736   |
| Jan. 25-26 | <b>4th Paris International Shell Meetings</b> , Vincennes, France, Association Française de Conchyliologie<br>1, impasse Guéménée, 75004 Paris, France. (1) 40-27-96-72<br>Jan.    |
| Jan 31     | <b>Broward Shell Show</b> , Pompano Beach, FL  |
| Feb. 2     | Richard Sedlak, 4371 SW 11th Street<br>Plantation, FL 33317 ..... (305) 584-9283   |
| Feb. 6-8   | <b>Ft. Myers Festival of Shells</b> , Ft. Myers, FL<br>Edie Chippeaux, 1308 Biltmore Drive<br>Ft. Myers, FL 33901 ..... (813) 936-4058   |
| Feb. 14-16 | <b>Sarasota Shell Show</b> , Sarasota, FL<br>Mary Mansfield, P.O. Box 15694<br>Sarasota, FL 34277-1694 ..... (813) 955-2715  |
| Feb. 21-23 | <b>Naples Shell Show</b> , Naples, FL<br>Naples Shell Club, P.O. Box 1991<br>Naples, FL 33939<br>Anna V. Szent-Kirallyi ..... (813) 597-6115<br>Gloria Murphy ..... (813) 649-7308 |
| Feb. 21-23 | <b>St. Petersburg Shell Show</b> , Treasure Is., FL<br>Bob & Betty Lipe, 440 75th Avenue<br>St. Petersburg Beach, FL 33706 ..... (813) 360-0586                                    |
| Mar. 5-8   | <b>Sanibel Shell Fair</b> , Sanibel, FL<br>Anne Joffe, 1163 Kittiwake Circle<br>Sanibel, FL 33957 ..... (813) 472-3151   |
| Mar. 12-14 | <b>Marco Is. Shell Club Show X</b> , Marco Is., FL<br>Robert & Joan Scribner, 1012 S. Collier, #112<br>Marco Island, FL 33937 ..... (813) 394-0399                                 |
| Mar. 20-22 | <b>Treasure Coast Shell Show</b> , Stuart, FL<br>Ted Jacaruso, 1964 NW Pine Tree Way<br>Stuart, FL 34994 ..... (407) 692-0270  |
| Apr. 3-5   | <b>Georgia Shell Show</b> , Atlanta, GA<br>Kenneth White, 2587 Ballew Court<br>Marietta, GA 30062 ..... (404) 977-0858   |
| Apr. 24-26 | <b>St. Louis Shell Show</b> , St. Louis, MO<br>Kathy Krattli, 312 Capri Drive<br>O'Fallon, MO 63366 ..... (314) 272-4266   |
| Jun. 20-21 | <b>XI Salon International du Coquillage</b> , Lutry, Switzerland<br>Dr. Ted W. Baer, CH-1602 La Croix<br>Switzerland ..... (021) 393771 or 207371                                  |

### Masters Award in Melbourne

The Astronaut Trail Shell Club announces that the new Masters Award will be given at their 1992 shell show. The Masters Award is administered by the Shell Museum and Educational Foundation of Sanibel. It is given to exhibits which have previously won the Conchologists of America Award, the duPont Trophy or the Smithsonian Award. For more information, contact Bobbi Cordy, 385 Needle Blvd., Merritt Island, FL 32953. Phone: (407) 452-5736.

For a shell show to be eligible for this award, it must have open participation by all exhibitors without restrictions, attract a large audience with an average of 1500 spectators per event, subscribe to sound judging process and provide ample and suitable space of at least 550 linear feet.

**ORDER A T-SHIRT WITH YOUR COA DUES  
PAYMENT: SEE "BOARDTALK."**

### GLORIA MARIS ANNIVERSARY NUMBER

Publication of the Belgian Society for Conchology, *Gloria Maris*, has recently issued a 30th Anniversary edition [vol. 30 (1-6) 1991]. The issue is a celebration of their membership, with focus on the species named by and for their members. Photos of many of their members are included, as is a list of the species they have described, and a section introducing members who have had shells named for them or who have authored shells. There is also an index of Volumes 25-29 (1986-1991), listing many interesting articles that have appeared in the publication in the last six years. For information, write Secretary R. de Roover, Vorsterslaan, 7, 2180 Ekeren-Donk, Belgium.



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Publishers of Distinctive Books on Mollusks

#### SPECTACULAR NEW SHELL BOOKS

S. Peter Dance and David Heppell, 1991

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Rombouts, Coomans and Dijkstra, 1991

#### GUIDE BOOK TO PECTEN SHELLS

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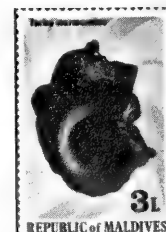
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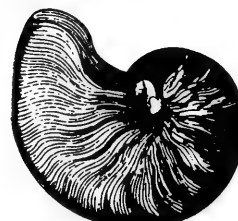
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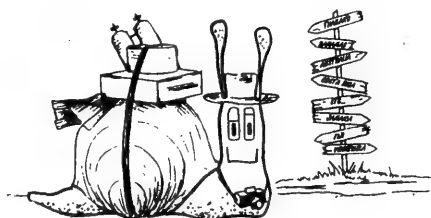
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